LifeFitness

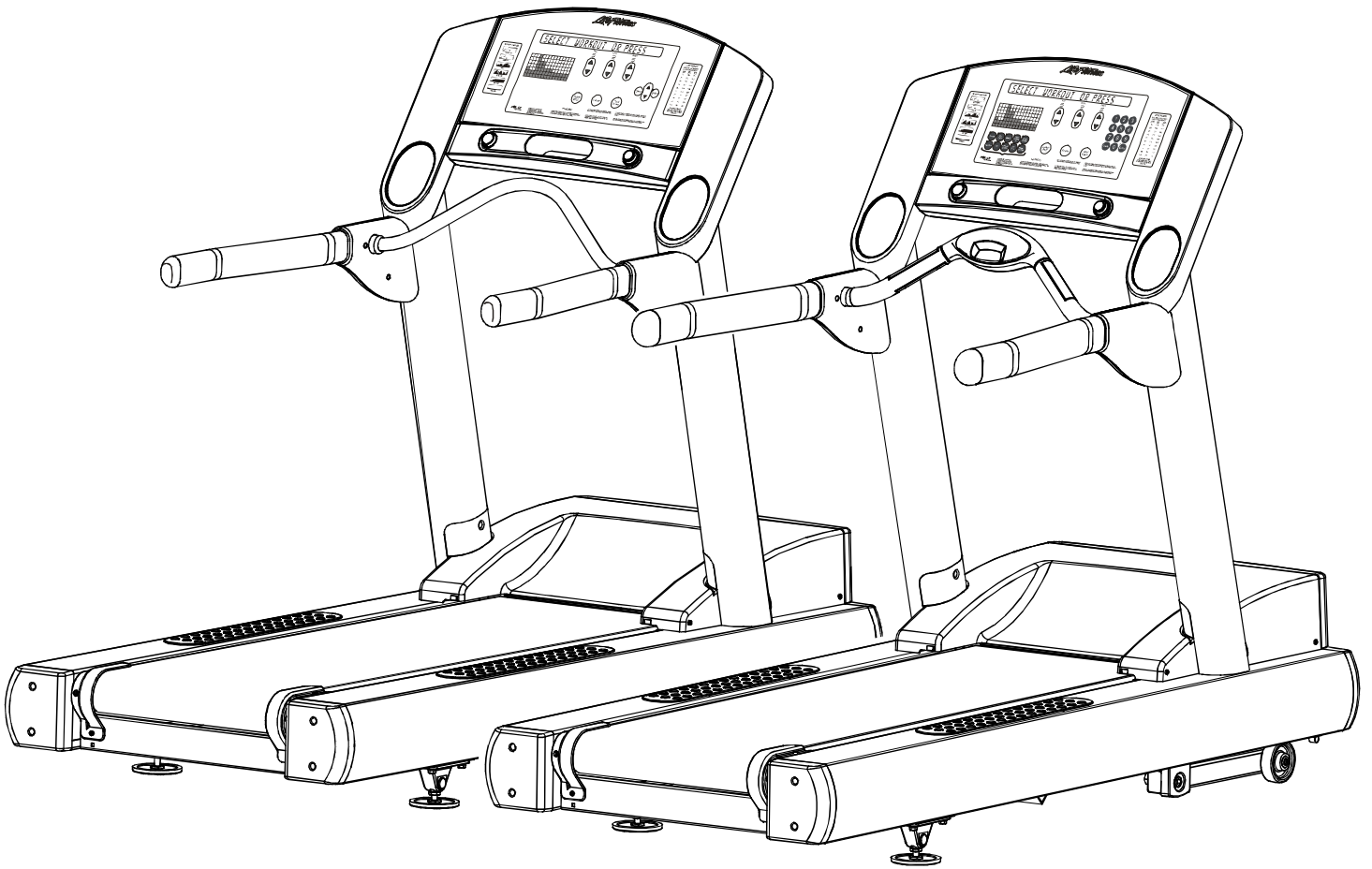## Model 97Te, 95Te, 97Ti, 95Ti, and 93T
ARCTIC SILVER Treadmills

Customer Support Services
SERVICE MANUAL

GENERAL CONTENTS

SECTIONAL CONTENTS

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Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
Introduction

This Service Manual provides safe and efficient step-by-step test and service procedures for 97Ti, 97Te, 95Ti, 95Te, and 93T Treadmills. The "Ti" designation stands for Light Emitting Diode (LED) Consoles and the "Te" designation stands for Liquid Crystal Display (LCD) Consoles. Illustrations in this manual reflect service view(s) to compliment the step-by-step procedure. Unnecessary views or details may not be illustrated for the sake of clarity.

When a service problem occurs, it is recommended that you first refer to "Troubleshooting" in Section 1 or "Diagnostics" in Section 2. Refer to "How To…" in Section 3 for actual service procedures, and in addition, Special Service Tools will be listed otherwise, standard tools should be used. Refer to "Electronics" in Section 4 for Block Diagrams and Connector locations. Refer to "Miscellaneous" in Section 5 for ID Tag Location, Maintenance, and other general information pertinent to the product.

Life Fitness Customer Support Services (CSS) can be contacted Monday - Friday 8:00 AM - 5:00 PM Central Standard Time. To response to your needs expeditiously, please provide Life Fitness Customer Support Services with the following information:

- Model number
- Serial number
- Part name and number
- Problem or symptom

LIFE FITNESS – CUSTOMER SUPPORT SERVICES
10601 Belmont Avenue; Franklin Park, IL 60131; U.S.A.
Telephone: 847.451.0036   Toll-free: 800.351.3737
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Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
Theory of Operation

The Treadmill is an electromechanical device that operates on A/C Voltage System and is controlled through the electronics in the Display Console. The key components that make up the Treadmill are the Unit Frame, Electric Motor and Motor Controller, Belt and Deck, Pulleys and Rollers, and the Display Console.

Initially the Line Filter receives the voltage. It is to the Motor Controller and other various electrical and electronic components that activate all the mechanical devices. The operator ultimately controls all electromechanical devices through the Console Display and with a touch of a finger can make settings and adjustments to Speed, Incline, and Custom Workout Programs.

The Unit Frame is critical not only to support the operator but also to support the electromechanical devices and the unit's overall appearance. Although the frame is a non-maintenance item, its design and structure are essential to providing years of safe and reliable service.

The most critical parts on the Treadmill are the Striding Belt and Deck. Regardless of all other components, the success of a good Treadmill is its Striding Belt and Deck. The Deck is made up of a special particleboard, which allows for flexibility and long wear. The Waxless Striding Belt allows for self lubrication to ensure long life to both belt and deck. Under the Deck are the Lifesprings™, which are designed to support and absorb the shock load.

The Striding Belt is designed to endure constant stress loads. It is mounted directly over the Front and Rear Rollers. The Main Drive Motor has a Pulley on the end of its shaft, which is connected by a Drive Belt to the Front Roller Pulley. The Rear Roller is freewheeling. The Striding Belt tension is adjustable by means of Adjusting Bolts, which are located at the ends of the Rear Roller. When turned, they are used to adjust belt tension and belt centering. In order to increase belt and deck life, it is important to properly keep all areas of the machine clean.

The Display Console is the brain center of the Treadmill. It is here where all electromechanical operations are controlled for specific program operations. Depending on the Display Console, various selections and settings can be easily accomplished either through a Numeric Keypad or Up/Down Arrows. The Display Console allows the operator to selectively choose the program and input pertinent statistical information such as Weight, Age, Language, etc.

The Treadmill is by far one of the most popular pieces of all cardiovascular exercise equipment. With proper routine preventative maintenance and care, it will provide a lifetime of healthy cardiovascular exercise.

Unless otherwise specified, only basic hand tools are required to perform service procedures outlined in the How To... section of this manual, which consist of:

- Philips and Straight-Blade Screw Drivers
- TORX® Bit Set
- Pliers
- Rubber Mallet
- Snap Ring Pliers (internal and external)
- Removable Thread Locking Compound
- Standard and Metric Size Socket Set (3/8" or 1/2" drive)
- Standard and Metric Size Combination, open-end, or Box Wrenches

Familiarize yourself with those words and acronyms commonly referred to in this manual.

Anti-Scuff Pads Rubber strips located on the surface of each side of the frame, and used to ensure sure footing.

Connectors Plastic devices used to connect wiring together.

Deck Special particleboard that is used for the running surface.

Display Console Board Electronic board used for making direct input settings and monitoring output messages, which are displayed in the digital readout display.

EEPROM Electrically erasable programmable read only memory.

EEROM Electrically erasable read only memory.

Frame Tag Board Stores maintenance and error data with date and time stamp.

Front Roller Motor belt driven, the front roller drives the striding belt.

HR Sensor Located in each handle grip and measures heart rate.

Idler Pulley Assembly A spring-loaded bracket assembly pulley, which is used to maintain constant load against the main drive belt.

Jumper Electrical connector used to connect between two electrical points.

LED Light Emitting Diodes.

LCD Liquid Crystal Display

Levelers Adjustable supports under the rear of the treadmill, which are used to stabilize the unit.

Lift Motor The motor that raises and lowers the unit for incline and decline operations.

LifePulse Measures heart rate.

LifeSprings Springs under the deck to absorb impact of the walker or runner.

GLOSSARY

Main Drive Belt	Connects between the main drive motor pulley and the front roller pulley, and used to transmit the driving power of the main drive motor to the front roller.
Main Wire Harness	Connected to the operating components of the unit to provide electrical power.
Motor Controller	Regulates the speed of the striding belt.
Overlay Bezel	A clear plastic covering over the display console.
PCB	Programmable Circuit Board
Power Module	Receives main electrical source from the wall outlet to distribute voltage throughout the various electromechanical systems.
Polar Receiver	Monitors heart rate.
Smart Stop Sensor	Senses the presence of an operator.
Rear Roller	A free spinning roller with adjusting screws at each end of the roller used for tensioning and centering the striding belt.
Rear Roller Guards	Located at the back of each side of the rear roller, are used as protective guards.
RPM	Revolutions per minute.
Static Current	Steady current flow.
Stop Switch	A switch used to interrupt power going to the motor to stop the unit.
Striding Belt	Sometimes referred to as the 'walking belt' and used to walk or run on.
Telemetry Receiver	A sensor that reads Heart Rate signal from the operator's chest strap transmitter.
Ties	Plastic straps used to secure loose wiring to the main frame.
Wax/Lift Board	A circuit board, which is located under the motor shroud, is used to communicate input/output signals to and from the console, wax and lift motors, frame tag, and motor.

SECTION 1

TROUBLESHOOTING GUIDE

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
Contents (continued)

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
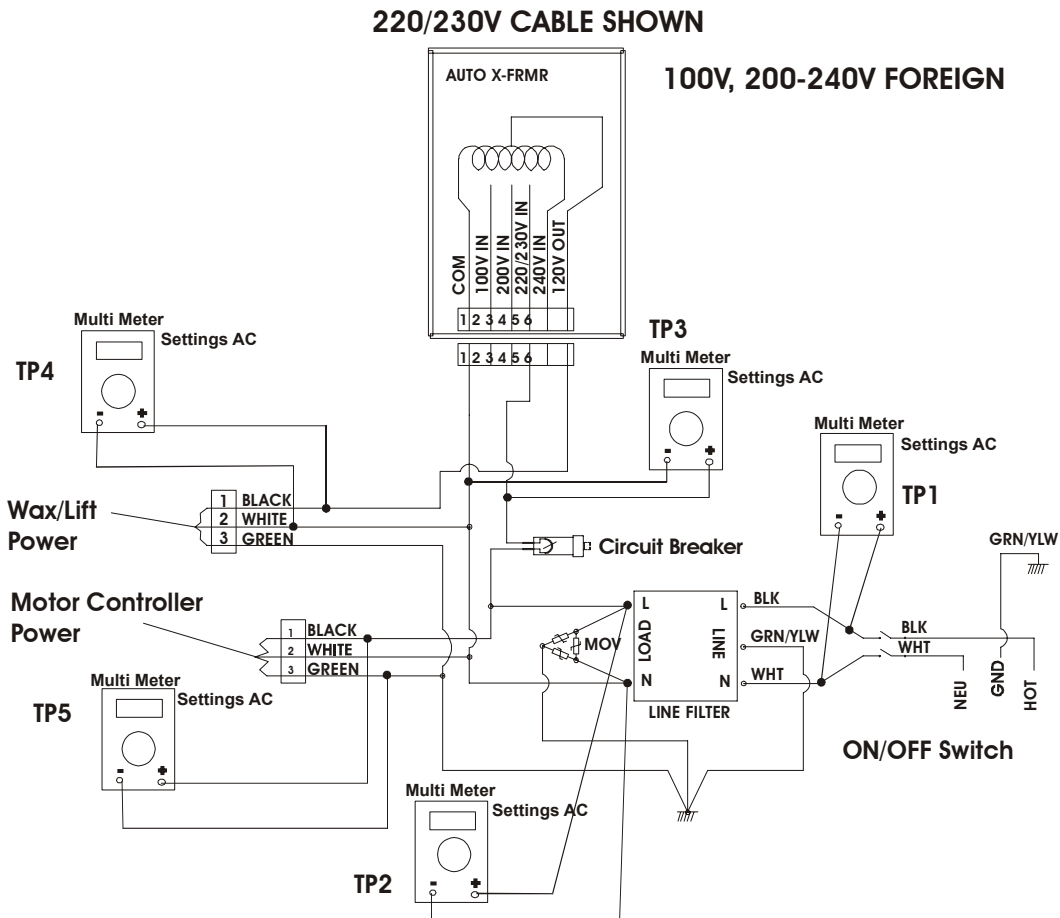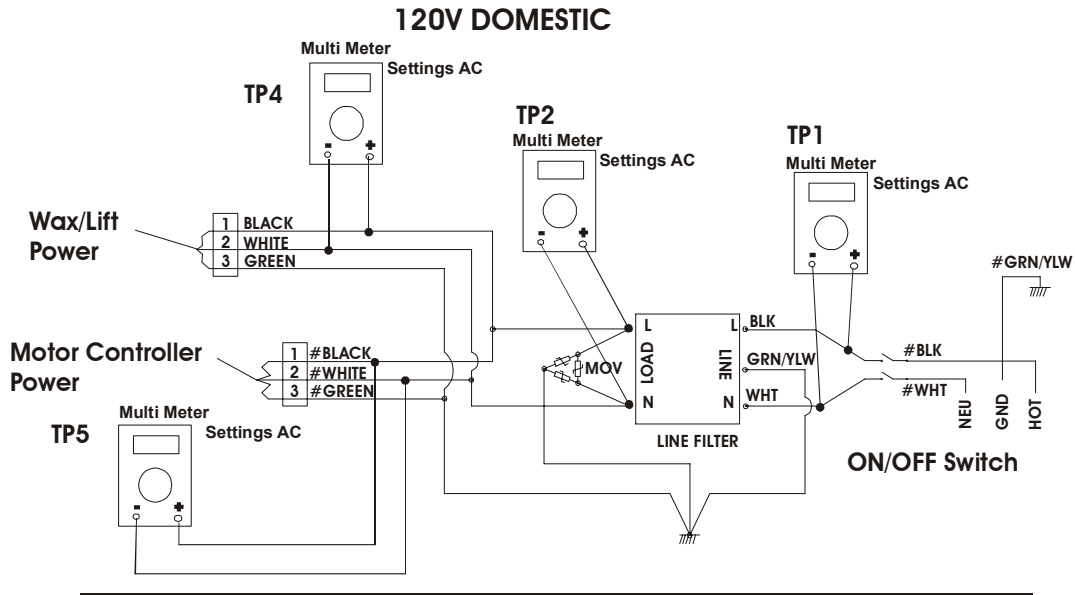# TROUBLESHOOTING GUIDE

NO POWER TO TREADMILL

In order to diagnose NO POWER to Treadmill, the Motor Cover must be removed, and the Treadmill must be plugged into an electrical outlet. Use the following **TROUBLESHOOTING CHART** to take the proper corrective action for NO POWER TO TREADMILL. In conjunction with this Chart, refer to the next page to reference Test Points (**TP1** through **TP5**) on the **Electrical Schematic**.

STEPS	INSPECT	ACTION	RESULTS
1	Line Cord Voltage	Remove the Line Cord Bracket, unplug the Line Cord from Treadmill, and then test for Line Voltage.	If Line Voltage is present, then continue on to Step 2.
			If Line Voltage is not present, then test for Voltage at wall outlet. If no voltage is present, then check the Main Service Breaker at the Facility. If wall outlet voltage is present, then replace the Line Cord.
2	Power Switch	Turn the Unit Power Switch ON, and test for Line Voltage at TP1.	If Line Voltage is present, then continue on to Step 3.
			If Line Voltage is not present, then replace Power Switch.
3	Line Filter	Turn the Unit Power Switch ON, and test for Line Voltage at TP2.	If Line Voltage is present, then continue on to Step 4.
			If Line Voltage is not present, then replace the Line Filter.
4	Circuit Breaker	Turn the Unit Power Switch ON, and test for Line Voltage at TP3.	If Line Voltage is present, then continue on to Step 5.
			If the Line Voltage is not present, then reset the Circuit Breaker, or if necessary replace it.
5	Motor Controller	Turn the Unit Power Switch ON, and test for Line Voltage at the Motor Controller Cable at TP5.	If Line Voltage is present and NO LEDs are lit then check to see if the Motor Cable is unplugged or damaged, and replace as necessary.
			If Line Voltage is present and NO LEDs are lit, then check to see if the Motor is overheated or is damaged. With the Motor unplugged, OHM out the two blue wires using a Multi-Meter. If there is NO Continuity, then replace Motor. If <u>NO Line Voltage</u> is present, then check Cables between the Power Box and Motor Controller, and replace as necessary.
6	Auto Transformer and Wax/Lift Board	Turn the Unit Power Switch ON, and test for 120v AC at the Wax/Lift Board Cable at TP4.	Check for damaged cables and replace. If the cables are not damaged, replace the Auto Transformer.
		NO LEDs are lit on the Wax/Lift Board.	Remove the Wax/Lift Board from the Treadmill. Check fuses 1, 2, and 3, with the Multi-Meter set on resistance. If the fuses are good, then test the power cable from the Power Box to the Wax/Lift Board for 120 Volts. If fuses are open, then replace the Wax/Lift PCB.
		Fuse No. 1 is open.	Inspect the Wax/Lift Board for any signs of damage. If damaged, replace the Wax/Lift Board.
			Inspect cabling from the Wax/Lift Board to: Frame Tag, Motor Controller, Negative Switch, and Lift Motor Home Switch. If cabling is damaged, then replace as necessary.
		Fuses No. 2 or 3 are open.	Check for a shorted wire at the Lift Motor. The resistance is checked at the: Black to Red wire, which should read about 30 OHMS; the White to Red wire should read 15 OHMS, and the White to Black wire should also read 15 OHMS. If any of these wires register '0 OHMS', then replace the Lift Motor.

NO POWER TO TREADMILL - Continued

120V DOMESTIC

220/230V CABLE SHOWN

100V, 200-240V FOREIGN

TROUBLESHOOTING GUIDE

NO POWER TO TREADMILL CONSOLE

Use the following procedure to troubleshoot No Power to the Treadmill Console.

1. Turn the Power OFF to the Unit.

2. Remove the Console Assembly to gain access to the Main Wiring Harness (P1). Leave all cables connected for testing.

3. Turn the Power back ON.

4. Place the **BLACK** Negative lead of the Multi-Meter on Pins No. 1 (yellow) and 2 (orange) to obtain a ground.

5. Place the **RED** Positive lead of the Multi-Meter on the corresponding wire to the verify voltage.

6. Following the Troubleshooting Chart below to verify problem.

TROUBLESHOOTING – "NO POWER TO DISPLAY CONSOLE"				
VOLTS	FUSE NO.	WAX/LIFT BOARD WIRE	POSSIBLE CAUSE	SOLUTION
12VDC	4	White	Short circuit in the Emergency Stop Switch Circuit.	If Voltage is present and the Console is not ON, then replace the Console PCB. If NO Voltage is present, then check the corresponding Wax Lift Board Fuse.
8VDC	6	Red	Short circuit in the Console PCB.	If Voltage is present and the Console is not ON, then replace the Console PCB. If NO Voltage is present, then check the corresponding Wax Lift Board Fuse.
8VDC	5	Brown	Short circuit in the Console PCB.	If Voltage is present and the Console is not ON, then replace the Console PCB. If NO Voltage is present, then check the corresponding Wax Lift Board Fuse.
			Short in the Smart Stop Circuit or Cable.	Inspect the Smart Stop Circuit Board and Cables for damage. If necessary, replace.
			C-SAFE Port, Fuse No. 5, shorts out when plugging in an accessory.	Unplug the accessory that is connected to the C-SAFE ports. If problem continues with the accessory unplugged, replace the Console. If problem only persists with accessory plugged in, then the accessory vendor must be contacted.
			Check for shorts in cables.	If necessary, replace.

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TROUBLESHOOTING GUIDE

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
No Power.	Insufficient power source.	Plug treadmill into a proper electrical configuration. Refer to the Operations Manual.
	Circuit breaker, if equipped.	Verify that circuit breaker is not open. If open, reset circuit breaker, if equipped.
Display does not illuminate when machine is powered on.	Insufficient power source.	Plug treadmill into a proper electrical configuration. Refer To The Operations Manual.
	Loose 10-pin connection at display console or wax/lift control board.	Check all electrical connections for proper attachment.
	Damaged main harness wire connection.	Replace wire harness. See How To…Replace Main Wire Harness.
	Row of six LEDs not lit.	Check that the EEPROM in the Wax Lift Board is seated properly. If necessary replace the Wax Lift Board.
	Wax/Lift Board EEPROM not seated or missing.	If row of 6 LEDs not lit on top of Wax/Lift Board, then check that the EEPROM in the Wax/Lift Board is seated properly. Replace the Wax/Lift Board if necessary.
Striding Belt slips during footfall.	Striding belt slips on front roller during stall test.	Check striding belt & re-tension as necessary. See How…To Adjust Belt Tension.
Maximum speed is reduced.	User is pushing striding belt.	Instruct users not to push striding belt in either direction.
	Striding belt/deck malfunction. The deck laminate worn through or the underside of striding belt glazed over (hard, glossy).	Replace belt and deck. See How To…Replace Striding Belt.
	Insufficient power source.	Plug treadmill into a proper electrical configuration. Refer to the Operations Manual.
Knocking sound at rear of machine.	Faulty rear roller bearings.	Replace rear roller assembly.
Knocking sound coming from deck.	Life Springs not positioned correctly and/or loose mounting hardware.	Reposition or tighten life springs.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Rubbing sound from underneath machine.	Foreign objects may be stuck underneath the machine.	Inspect underneath striding belt and machine. Remove any debris or objects that may cause interference with the treadmill.
Display reads immobilized.	Immobilized feature is activated.	Press and hold the SPEED Down Arrow Key and press the Pause Key to toggle ON/OFF.
Squeaking noise.	Drive Motor Belt tensioning pin may be squeaking.	Clean and lubricate as necessary.
	Drive Motor Belt may be worn or damaged.	Replace Drive Motor Belt. See How To… Replace Drive Motor Belt.
Loud groaning sound heard from front of machine while elevating.	Lift mechanism pivot points are dry.	Clean and lubricate as necessary.
	Faulty lift motor.	Replace the lift motor. See How To…Replace Lift Motor.
	Obstruction.	Inspect wheels or flooring for damage.
Loud groaning on footfall.	High friction between deck and striding belt.	Refer to Belt and Deck Test in Diagnostics.
Display overlay keys are not responding when depressed.	Loose ribbon connection(s).	Test the Key Pad function. See Diagnostics in this Section. Verify that the two ribbon connections are attached to the display PCB. Test Key Pad function. If attached, reseat the connection and verify the operation.
	Worn or defective overlay assembly.	Replace overlay assembly. See How To… Replace Overlay Assembly.
Unit resets randomly or pauses.	Insufficient power source.	Plug treadmill into a proper electrical configuration. Refer to the Operations Manual.
	Damaged ground prong on line cord.	Replace line cord. See How To… Replace Line Cord.
	Line cord improperly seated in electrical outlet.	Inspect power connection at electrical outlet and at machine for proper contact.
	Emergency stop magnet not engaged.	Re-engage the emergency stop magnet.
	Towel or magazine may be making contact with stop switch while user is running.	Move all possible obstructions off display console and handlebar.
	Loose connections at display console.	Secure all connections at display console PCB.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Unit resets randomly or pauses.	Stop Switch is activated with very light pressure or returns very slowly after being pressed.	Replace Stop Switch. See How To…Replace Stop Switch.
	Stop switch cable not making proper contact.	Re-seat cable from stop switch and verify the operation.
	Pinched main wire harness.	Replace the main wire harness. See How To…Replace Main Wire Harness.
	Open ground path.	Using voltmeter, check all points for continuity: console pan screws, console mounting screws, handlebar screws, and handrail mounting screws to frame with respect to ground. Ground must be a non-painted surface.
	Inspect Smart Stop system.	Disconnect the 4-pin connector and verify if problem exists. If no, replace Smart Stop PCB. See "How To…" Replace Smart Stop PCB.
The Striding Belt is traveling beyond the tracking limits.	Striding belt needs to be re-tensioned or tracking needs adjustment.	Refer to belt tensioning or tracking adjustment procedure in operation or service manual.
	Unit is not level.	Refer to the Operation Manual or Service Manual.
	Check to see if the belt barriers are still in place or damaged.	Contact Life Fitness

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Striding belt not centered.	Striding belt tension or tracking needs to be adjusted.	See How To…Adjust And Tension The Striding Belt.
Striding belt misalignment, but properly tensioned.	Improper walking/running.	Notify Club Manager.
Lifepulse Heart Rate System does not respond or improper heart rate reading or "Reading Heart Rate" appears in the message center for more than 2 minutes without giving heart rate reading.	Dirty handlebar sensors.	Wipe sensors with a clean soft cloth. Verify operation. Refer to Diagnostics in Section 2.
	User running over 4.5 mph (7.5kph).	For accurate heart rate reading, user must slow down to less than 4.5 mph (7.5kph).
	User may have an unusual heart condition.	Have different people grasp sensors to detect any variance.
	Loose connections at display console and handlebar.	Secure connections at display console and handlebar.
	Faulty heart rate sensors.	Replace handlebar sensors. See How To… Replace Heart Rate Kit.
	Faulty display console PCB.	Replace display console PCB. See How To… Replace Console PCB.
Display reads a continuous heart rate reading when hands are removed.	Harness wires pinched at handlebar or handrail.	If the wires are damaged, replace damaged cables. See How To…Replace Handlebar Assembly.
No Chest Strap detected.	Chest strap sensors not making good contact with body of user.	Adjust chest strap and moisten sensors to make better contact with skin.
	User is out of monitoring range.	Move within 3 ft (1 meter) of receiver
	Loose connection at receiver.	Check connection. See "How To"...Replace Telemetry Receiver.
	Faulty chest strap.	Replace chest strap.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
No Chest Strap Detected	Faulty receiver.	Verify 5VDC at P6 pin 1. If yes, replace transmitter. If no, replace display console PCB.
	Telemetry turned OFF.	Enter Manager's Configuration in the Diagnostic mode, and then turn telemetry to ON.
	Bad connection at Telemetry cable and receiver.	Check cable jack and receiver connection.
Erratic Heart Rate readings.	Treadmills are located less than 8" (203 mm) apart.	Position treadmills to recommended distances. Refer to the Operations Manual.
Abnormally elevated heart rate readings.	Electromagnetic interference from television sets and /or antennas.	Move the treadmill a few inches away from the probable cause, or move the probable cause a few inches away from the treadmill, until the heart rate readings are accurate.
	Electromagnetic interference from cell phones.	
	Electromagnetic interference from computers.	
	Electromagnetic interference from cars.	
	Electromagnetic interference from high voltage power lines.	
	Electromagnetic interference from motor driven exercise equipment.	
	Electromagnetic interference from another heart rate transmitter within 3 ft (1m).	
Display Reads: MOTOR CONTROLLER COMM BAD: CHECK HARNESS BETWEEN LIFT & CONTROLLER -P9/P3	Loose wire harness.	Reset connections at wax/lift PCB connector P9 and motor controller PCB connector P3.
Display Reads: MOTOR CONTROLLER COMM BAD: CHECK POWER TO MOTOR CONTROLLER.	Bad Motor Controller.	Verify line voltage at P1 on the Motor Controller. If voltage exists, replace motor controller. See "How To…" Replace Motor Controller. Refer to Section 4 Voltage Specifications.
Display Reads: WAX/LIFT BOARD COMM BAD: CHECK POWER ON LIFT	Bad Wax/Lift PCB.	Verify if the LED 7 (Green) and LED 8 (Red) is lit on the Wax/Lift PCB. If no, replace Wax/Lift PCB. See How To Replace…Wax /Lift PCB.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Display Reads: BOTH LIFT and CONTROLLER COMM BAD: CHECK HARNESS BETWEEN CONSOLE & LIFT -P1/P1	Loose wire harness.	Reset connection at Wax/Lift PCB connector P1 and Display Console PCB connector P1.
Display Reads: SYSTEM CONFIGURED TWO WIRED	Motor Controller is not jumped correctly.	Reset jumper at JM1 on both pins.
Display Reads: INCLINE INOPERATIVE – CONTINUE IF DESIRED	Level or negative switch.	Refer to the Diagnostics Section 2, Incline Automatic to verify the operation. If replacement is required. See "How To…" Replace Leveler or Negative Switch.
		Inspect wire harness for damage, and replace if needed.
	Lift motor adjustment incorrect.	See "How To…Replace the Lift Motor" and refer to the step in the procedure that describes 13-3/4" tube adjustment.
	Lift Motor.	Cycle motor in incline manual and verify 120VAC at P7 on Wax/Lift PCB. If not, replace lift motor. See How To Replace…Lift Motor.
Display Reads: HOME SWITCH ERROR	Lift switches wire harnesses are backward (applies only to 97Ti).	Switch the wire harnesses on the negative and level switches.
Display Reads: NEGATIVE SWITCH ERROR	Lift switches wire harnesses are backward (applies only to 97Ti decline).	Switch the wire harnesses on the negative and level switches.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Display Reads: SMART STOP UNPLUGGED (95Ti and 97Ti are equipped)	Broken, damaged, or unplugged harness.	Reseat or replace smart stop harness.
Display Reads: CLOCK COMM BAD	Frame board or bad wire harness. See Diagnostic Test Frame Tag EEPROM.	Verify continuity on wire harness. If continuity exists, replace frame tag PCB. See How To… Replace Frame Tag PCB. If continuity does not exist, replace wire harness.
Display Reads: FRAME TAG UNPLUGGED	Disconnected wire harness.	Reconnect wire harness.
Display Reads: SCI ERROR	Bad wire harness connection.	Bad wire harness or noise. Reseat connection and verify operation. If problem exists, reconnect your connection at the display console to wax/lift PCB
Display Reads: DYNAMIC CURRENT TRIP	Motor Controller, striding belt or deck.	Perform belt and deck test in Diagnostic Section 2.
Display Reads: CHECKSUM ERROR XXXX	Display Console	Replace Display Console
Display Reads: NOTIFY MAINTENANCE MOTOR CONTROLLER COMM BAD ERROR	Motor Controller.	Overheated motor caused by worn or damaged belt and deck. See Belt and Deck Test in Diagnostic Sect 2.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Display Reads: NOTIFY MAINTENANCE INCLINE TIMEOUT ERROR	Lift Motor.	Cycle motor in incline auto and verify 120VAC at P7 on Wax/Lift PCB. Replace lift motor.
	Level switch, negative switch or wire harness is defective.	In incline auto in diagnostics, verify the operation of the switches. Replace switches if defective. See How To…Replace Switches.
		Verify the wire for continuity, replace wire harness if defective.
Display Reads: NOTIFY MAINTENANCE HOME SWITCH ERROR	Lift switches wire harnesses are backward. This applies only to 97Ti.	Switch the wire harnesses on the negative and level switches.
Display Reads: NOTIFY MAINTENANCE NEGATIVE SWITCH ERROR	Lift switches wire harnesses are backward. This applies only to 97Ti.	Switch the wire harnesses on the negative and level switches.
Display Reads: NOTIFY MAINTENANCE FRAME TAG UNPLUGGED	Broken, damaged or unplugged harness.	Re-seat the frame tag wire harness.
Display Reads: UNABLE TO OBTAIN TARGET SPEED	Incorrect power requirements.	Refer to the Operations Manual
	Striding belt/deck malfunction. If the deck laminate is worn through or the underside of striding belt is glazed over (hard, glossy).	Perform belt and deck test in Diagnostics Section 2. Replace belt and deck. See How To… Replace Striding Belt.
	Motor Controller.	Replace motor controller.
Display Reads: NOTIFY MAINTENANCE SPEED SENSOR ERROR	Speed sensor or disconnected wire harness.	This error will appear after a workout, but the unit will continue to function. Enter diagnostics, Speed Manual, and look for a RPM reading. If no reading exists, check continuity on the wire harness. No continuity, replace wire harness. If continuity exists, replace speed sensor.
Display Reads: EXTERNAL ROM FAILURE	Display PCB.	Replace display PCB.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
TV Channels or volume does not change.	Key Pad malfunction.	Run Key pad test in diagnostics.
	Interface PC board defective.	Replace Interface PC board.
No volume for TV Reception.	Faulty headphones.	Replace headphones.
	Faulty headphone jack assembly.	Replace headphone jack assembly.
	Faulty cable to Headphone jack assembly	Replace cable to headphone jack assembly.
	Problem on the single board computer	Replace single board computer.
	Problem on Interface board	Replace interface board
	Air/cable setting may not be correct.	Follow the setup procedures in the operator manual.
Unable to receive any channels when using cable.	Air/cable setting may not be correct.	Follow the setup procedures in the operator manual.
	75 ohm coax may be bad.	Replace 75 ohm coax.
	75 ohm coax may be unplugged.	Make sure cable is properly secure.
Snow and noise appear on the screen.	Air/cable setting may not be correct.	Follow the setup procedures in the operator manual.
	75 ohm coax may be bad.	Replace 75 ohm coax.
Screen is blank or dark with or without sound	Back Light power inverter bad	Replace/reconnect LCD/Touch Screen
	LCD Back Light	Replace/reconnect backlight inverter
	LCD Screen failure	Replace/reconnect LCD/Touch Screen
	Problem on the single board computer	Replace single board computer.
The wrong buttons activate when the touch screen is touched.	Touch Screen not calibrated correctly	Calibrated Touch Screen in diagnostics
		Replace LCD/Touch Screen
TV receives channels 5 & 6 only.	Cable selection standard.	TV configuration correct setting

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TROUBLESHOOTING GUIDE

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Screen does not turn ON and no sounds	No power.	Check Wax/lift board for 12 & 5 volts DC and replace if faulty.
		If Wax/Lift board ok check wire harnesses and connectors.
No beeps are heard at power up. After 15-20 seconds console shows "System Comm Unit time-out….." error message.	Interface Board did not power up.	Check Interface Board power cable.
		Check power and cable coming from Wax/Lift board.
Only one beep is heard at power-up. After 15-20 seconds a second beep.	Interface Board wasn't able to establish communications with all of the treadmill modules. Console shows error message of module that didn't respond.	Do a System Comm Test in Diagnostics to get more information on what modules are not working properly.
One beep is heard at power-up followed by one burp sound.	Interface Board checksum error detected. Console shows "System Comm Unit time-out…" error message.	Update Interface Board with the latest software.
One beep is heard at power-up followed by 3 beeps. After 15-20 seconds another beep is never heard and the screen stays black.	Console Board did not power up. Interface Board has successfully powered up and all treadmill modules are responding properly.	Check Console Board power cable.
One beep is heard at power-up followed by 3 beeps. After 15-20 seconds another beep is heard but the screen stays white.	System is up and running but display cable isn't connected properly or is faulty.	Check display cable.
One beep is heard at power-up followed by 3 beeps. After 15-20 seconds another beep is heard but the screen stays black.	Display inverter isn't working correctly.	Check for disconnected or faulty inverter cables.
Only one beep	At power-up	Interface board has power and is up and running
Only one beep and then one burp	At power-up	Interface board has power and has detected a checksum error. Unit will not work
Only one beep followed by 3 beeps in a row	At power-up	Interface board is up and running and has successfully communicated with all of the treadmill modules

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
TV Channels do not change.	Key pad malfunction.	Run Key pad test in diagnostics. Replace if defective.
	Interface PC board defective.	Replace Interface PC board.
TV Sound does not change.	Key pad malfunction.	Run Key pad test in diagnostics. Replace if defective.
	Interface PC board defective.	Replace Interface PC board.
No TV sound.	Faulty headphones.	Replace headphones.
	Faulty headphone jack assembly.	Replace headphone jack assembly.
	Faulty cable to Headphone jack assembly	Replace Headphone jack cable.
	Air/cable setting may not be correct	Follow the set up procedures in the operator manual.
Unable to receive any TV channels when using cable.	Air/cable setting may not be correct.	Follow the setup procedures in the operator manual.
	Coax Cable may be bad.	Replace Coax Cable.
	Coax Cable may be unplugged	Reconnect Cable.
Snow and noise appear on the screen.	Air/cable setting may not be correct.	Follow the setup procedures in the operator manual.
	Coax cable may be bad.	Replace Coax cable.
Screen is blank	LCD Back Light burned up.	Replace LCD/Touch Screen.
	Back Light power inverter bad	Replace backlight inverter
	LCD Screen failure	Replace LCD/Touch Screen.
	Problem on the single board computer	Replace Single Board Computer.
Screen is dark.	LCD Back Light burned up.	Replace LCD/Touch Screen.
	Back Light power inverter bad	Replace backlight inverter
Screen Does not respond to touch.	Touch screen failure.	Replace LCD/Touch Screen.
	Problem with Single Board Computer.	Replace Single Board Computer.
The wrong buttons activate when the touch screen is touched.	Touch Screen not calibrated correctly	Calibrate Touch Screen in Diagnostics.
	Touch Screen Damaged.	Replace LCD/Touch Screen.
Screen does not turn ON and no sound.	No power.	Check Wax/lift board for 12 & 5 volts DC and replace if faulty.
	Faulty wire harness to console.	Replace Wire Harness
Console does not Light up but there are audible Beeps	Back light inverter defective.	Replace inverter.
	LCD defective.	Replace LCD\TOUCH screen

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
No audio from FM radio	Coaxial cable is unplugged.	Reconnect coaxial cable.
	Volume control set too low.	Adjust volume control.
	Faulty headphones.	Replace headphones as necessary.
	Faulty headphone jack assembly.	Replace headphone jack assembly.
	Customer not wired for FM Radio.	Notify club owner
Audio static from FM radio	Weak signal, bad interface board.	Replace interface board or contact cable provider.
"Snowy" appearance when viewing secure video	Coaxial cable is unplugged.	Reconnect coaxial cable.
	Secure video set to improper channel.	Adjust channel assignment of secure video. (See TV/FM Radio Configuration in Section 2B)
	Weak signal, bad interface board.	Replace interface board or contact cable provider.
No Channel Select	FM Radio stations not configured.	Input channels manually or go through automatic scan

NOTES

SECTION 2A

DIAGNOSTIC MODES
FOR LED UNITS

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills

NOTES

Use the following to aid you in control and message locations:
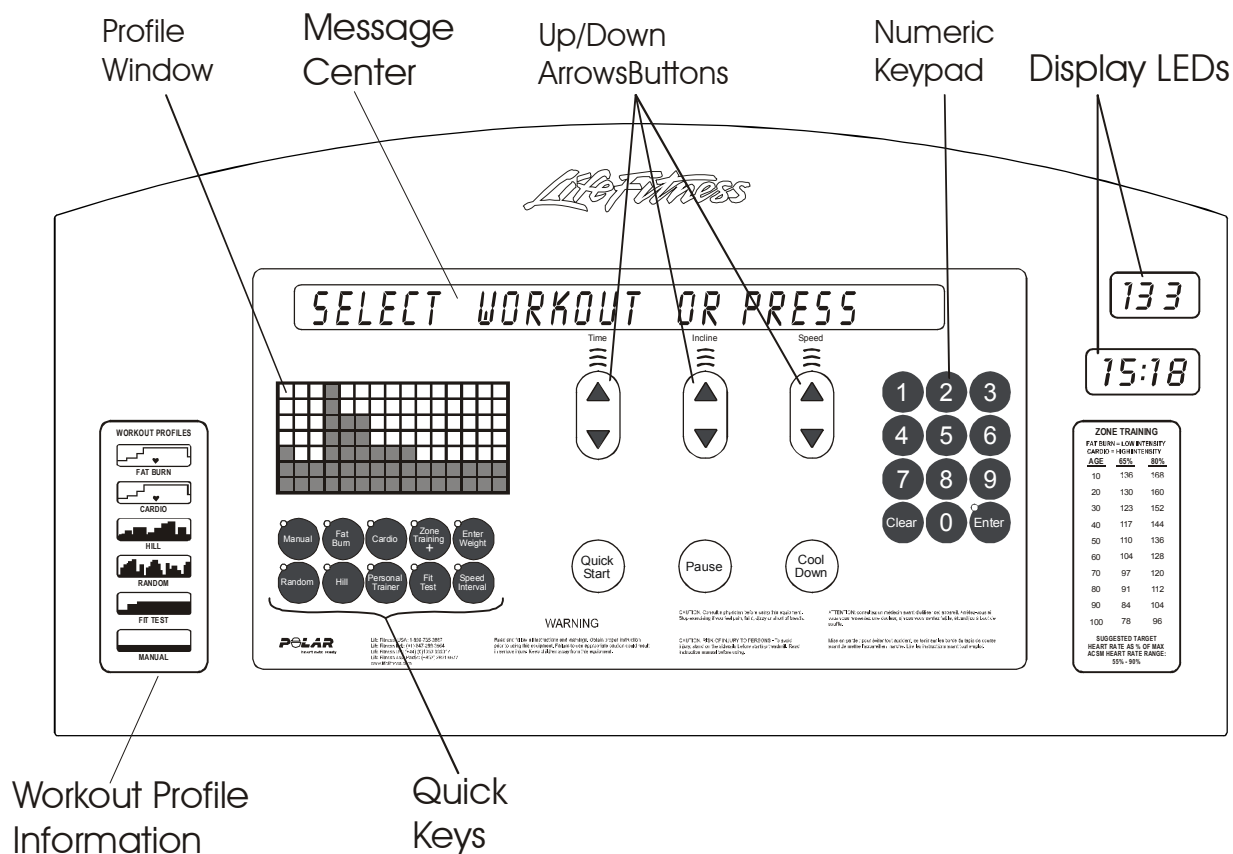
Profile Window

Message Center

Up/Down ArrowsButtons

Numeric Keypad

Display LEDs

Workout Profile Information

Quick Keys
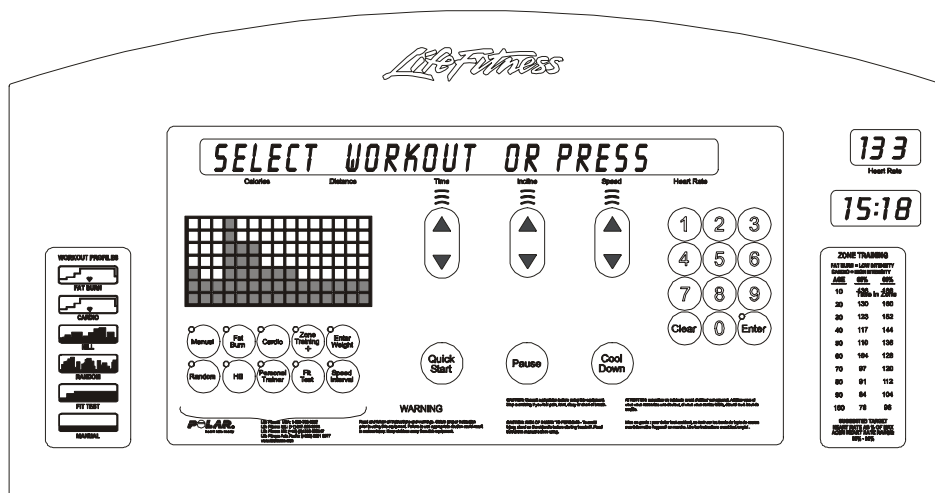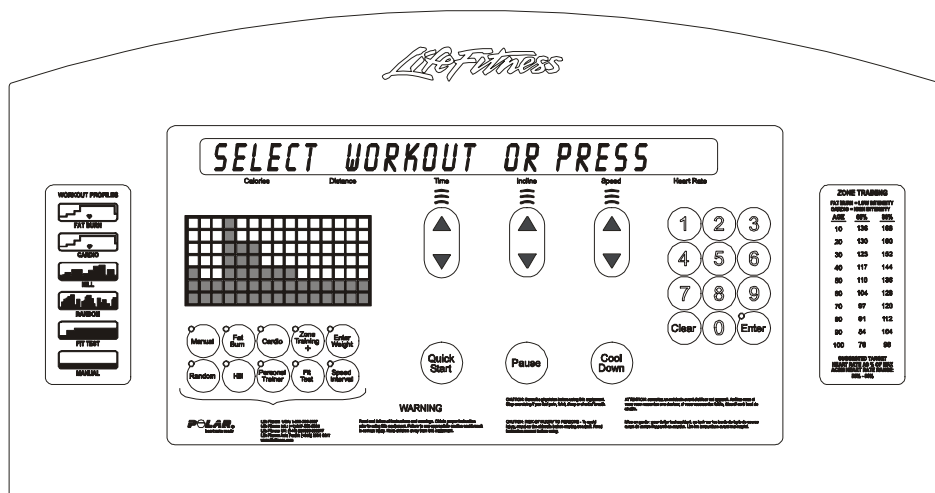
97Ti Treadmill

95Ti Treadmill
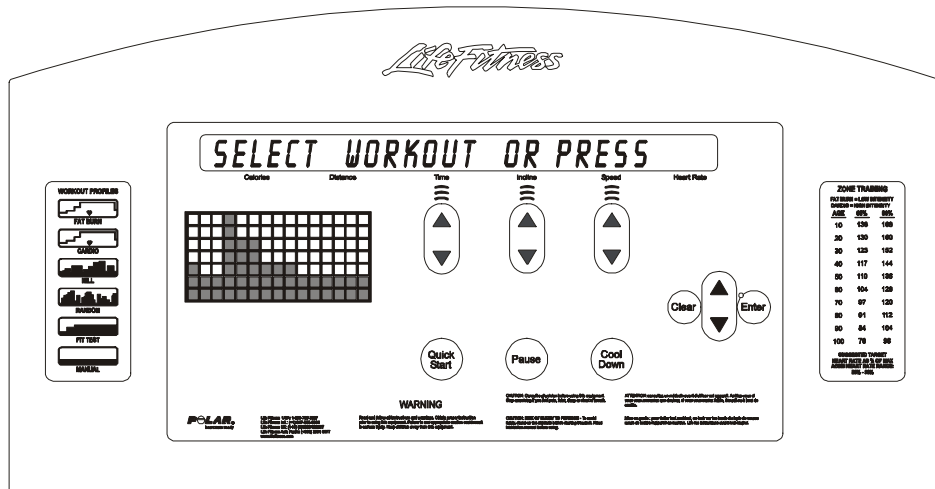
93T Treadmill

INITIAL SETTING OF THE REAL TIME CLOCK

As part of the initial installation of the treadmill, the real time clock may be configured to the local time. Initially the real time clock is set to Greenwich meantime (GMT) which is the mean solar time for the meridian at Greenwich, England, used as a basis for calculating time throughout most of the world. Upon powering up the unit the following message will be displayed:

```
WOULD YOU LIKE TO CHANGE THE CLOCK FROM GMT TO LOCAL TIME
```
   Calories   Distance   Time   Incline   Speed

```
IF YES  PRESS  ENTER
```
   Calories   Distance   Time   Incline   Speed

```
IF NO  PRESS  CLEAR
```
   Calories   Distance   Time   Incline   Speed

If the user wants to set the real time clock to the local time, the user must press the 'ENTER' key.
The user will be asked to set the display mode. The two display modes are 12-hour mode with AM/PM or 24 hour mode with no am/pm. displayed. The message will be:

```
CHOOSE CLOCK DISPLAY MODE BY USING ARROW KEYS
```
   Calories   Distance   Time   Incline   Speed

By pressing any of the arrow keys, the user toggles between the two modes. Once the mode is set, press the 'ENTER' key to continue.
After the display mode is set the user will now be asked to set the local time. The following message will appear:

> "CLOCK SET TO GMT",
> "USE ARROW KEYS TO "
> "CHANGE SYSTEM CLOCK",
> "TIME KEYS - HOURS",
> "INCLINE KEYS-MINUTES",
> "SPEED KEYS – SECONDS"

By pressing the specific arrow key, the user can set the real time clock to the local time.
After setting the local time, press the 'CLEAR' key to exit the real time clock setting mode.
The message "UPDATING CLOCK" will appear in the message center. The unit will then continue with the normal powering up sequence.

If the user does not want to set up the real time clock at this time, a 'CLEAR' key can be pressed to clear the initial message. The unit will continue with it's normal powering up sequence. The unit will ask a total of 5 times upon powering up if the real time clock wants to be set. After the 5th time the message will no longer appear. Refer to clock configuration to change the clock settings.
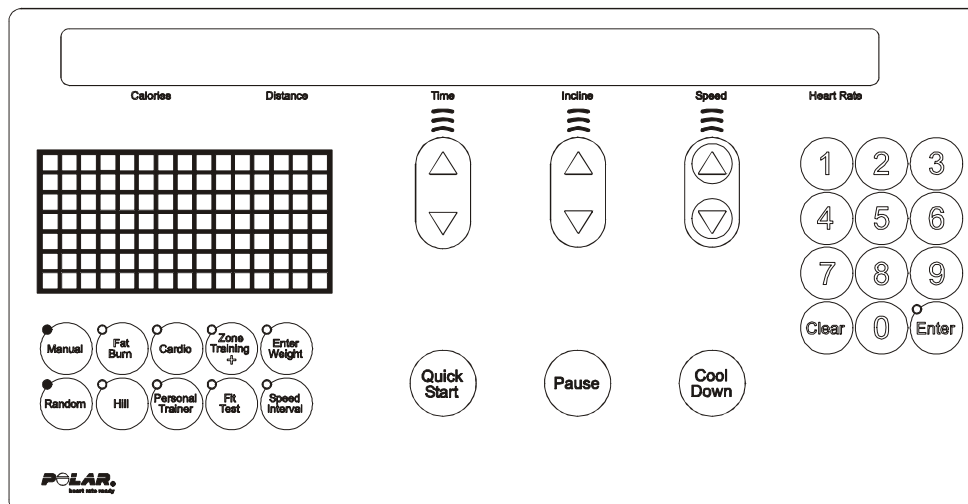
Diagnostics is entered by three methods:
1.   Hold down the PAUSE Key until the SERVICE MENU appears, and press the STOP Button.
2.   Hold down the PAUSE Key until the SERVICE MENU appears, and press CLEAR Key twice
3.   Hold down the PAUSE Key when power is applied.

The unit will take approx. 3 to 4 seconds to enter Diagnostics.

On entry to this state, the message:

SERVICE MENU				
Calories	Distance	Time	Incline	Speed

Followed by:

USE ARROW KEY TO SCROLL THROUGH LIST				
Calories	Distance	Time	Incline	Speed

Using any of the arrow keys will allow you to scroll through the four main categories.

SYSTEM TEST				
Calories	Distance	Time	Incline	Speed

INFORMATION				
Calories	Distance	Time	Incline	Speed

MAINTENANCE				
Calories	Distance	Time	Incline	Speed

CONFIGURATION				
Calories	Distance	Time	Incline	Speed

MAINTENANCE CONFIGURATION – QUICK ENTRY REFERENCE

Diagnostic selections can also be made by pressing a combination of program keys. The following is the list of diagnostic tests and their program key combination. All blank fields in the chart are considered "OFF" for that program key.

NOTE –Diagnostic mode has to be entered to take advantage of these program key combinations.
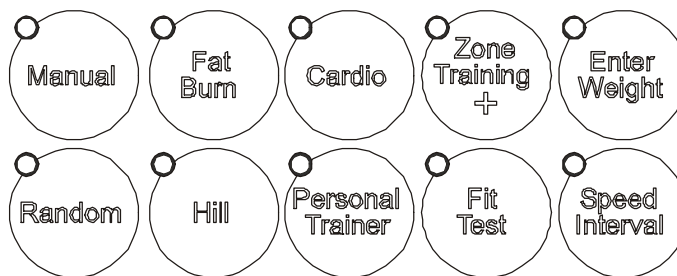
DIAGNOSTIC TESTS	MANUAL	FAT BURN	CARDIO	RANDOM	HILL	CUSTOM/ PERSONAL TRAINER	FIT TEST	ZONE TRAINING	SPEED INTERVAL	ENTER WEIGHT
SYSTEM TESTS										
BELT/DECK TEST						ON				
LIFEPULSE TEST		ON								
TELEMETRY TEST			ON							
SMART STOP TEST		ON			ON					
DISPLAY TEST	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
COMM TEST				ON			ON			
TAG EEPROM TEST					ON		ON			
CONSOLE EEPROM TEST		ON					ON			
LIFECENTER TEST		ON				ON				
CSAFE TEST			ON			ON				
SPEED AUTO				ON						
SPEED MANUAL	ON			ON						
SPEED ERROR				ON		ON				
INCLINE AUTO					ON					
INCLINE MANUAL	ON				ON					
INCLINE ERROR					ON	ON				
INFORMATION										
STATISTICS		ON	ON							
SOFTWARE VERSION		ON		ON						
CLOCK INFO	ON					ON				
MAINTENANCE INFO	ON		ON							
MAIN MOTOR INFO			ON	ON						
INCLINE MOTOR INFO			ON		ON					
SYSTEM ERROR INFO	ON	ON								
MAINTENANCE										
MAINTENANCE MENU	ON									

CONFIGURATION
- MANAGER CONFIGURATION
  - MANUFACTURER'S MENU
    - ACCESS RESTRICTED
    - LANGUAGE
    - MAXTIME SETUP
    - STANDBY CONFIGURATION
    - ENGLISH/METRIC UNITS
    - CUSTOM WORKOUT ENTRY (95/97)
    - TELEMETRY
    - SMART STOP ON/OFF
    - MAXIMUM SPEED
    - MINIMUM SPEED
    - PAUSE TIMEOUT
    - WATTS DISPLAY
    - METS DISPLAY
    - PACE DISPLAY ON/OFF
    - CALORIE PER/HOUR DISPLAY
    - DISTANCE CLIMBED DISPLAY
    - ACCELERATION RATE
    - DECELERATION RATE
    - ERASE CUSTOM WORKOUTS (95/97)
    - MAXIMUM INCLINE
    - START MESSAGE SETUP (95/97)
    - FIT TEST PLUS
    - MARATHON MODE
    - SYSTEM BEEPS (95/97)
  - TOUCH SCREEN CONFIGURATION

MAINTENANCE
- REPLACED BELT AND DECK
- REPLACED CONSOLE
- REPLACED MOTOR CONTROLLER
- REPLACED WAX LIFT BOARD
- REPLACED STOP SWITCH
- REPLACED OVERLAY BEZEL
- REPLACED DRIVE MOTOR
- REPLACED LIFT MOTOR

INFORMATION
- STATISTICS
- SOFTWARE VERSIONS
- MAIN MOTOR INFORMATION
- LIFT MOTOR INFORMATION
- SYSTEM ERRORS
- MAINTENANCE INFORMATION

SYSTEM TEST
- SYSTEM COMM TEST
- MOTOR TEST MODULE
  - SPEED AUTOMATIC
    - SPEED MANUAL
      - SPEED CONTROL ERRORS
- LIFT TEST MODULE
  - INCLINE AUTOMATIC
    - INCLINE MANUAL
      - INCLINE ERROR
- BELT/DECK TEST
  - VOLT/TEMP TEST
- LIFEPULSE TEST
- TELEMETRY TEST
- DISPLAY TEST
- CONSOLE EEPROM TEST
- FRAME TAG EEPROM
- REAL-TIME CLOCK
- SMART STOP TEST
- CSAFE TEST
- LIFECENTER TEST

Upon entry into this category, a SYSTEM COMMUNICATION (COMM) TEST will be performed automatically.

This test will attempt to communicate with all of the modules within the treadmill unit. If a module does not respond to the console processor an ERROR message will be displayed.

If all the modules communicate, the message is:

SYSTEM COMM OK				
Calories	Distance	Time	Incline	Speed

If the motor controller module does not communicate, the initial message will display:

MOTOR CONTROLLER COMM BAD				
Calories	Distance	Time	Incline	Speed

If the harness is disconnected the message is:

CHECK HARNESS BETWEEN LIFT AND CONTROLLER-P9/P3				
Calories	Distance	Time	Incline	Speed

CHECK POWER TO THE MOTOR CONTROLLER				
Calories	Distance	Time	Incline	Speed

If the motor controller has no power, the message is:

If the wax/lift board module does not communicate, the message is:

CHECK POWER TO WAX/LIFT BOARD				
Calories	Distance	Time	Incline	Speed

If both the motor controller module and the wax/lift board module do not communicate, the message is:

BOTH LIFT AND CONTROLLER COMM BAD				
Calories	Distance	Time	Incline	Speed

If the wax/lift and motor controller has no power, the message is:

CHECK POWER ON LIFT AND CONTROLLER				
Calories	Distance	Time	Incline	Speed

If the main harness from the console to the wax/lift board is disconnected, the message is:

CHECK HARNESS BETWEEN CONSOLE AND LIFT - P1/P1				
Calories	Distance	Time	Incline	Speed

If both the motor controller module and the wax/lift board module do communicate, but the console cannot perform a loop-back test, the message is:

```
SYSTEM  CONFIGURED  TWO  WIRE
```

| Calories | Distance | Time | Incline | Speed |

If SYSTEM COMM OK is displayed it will advance to the SYSTEM TEST category.

Press the 'CLEAR' key to return to the MAIN DIAGNOSTIC CATEGORIES.
Press the 'ENTER' key to advance to the SYSTEM TEST SUB-CATEGORIES.

Upon entry the, the message is:

```
┌─────────────────────────────────────────────┐
│ SYSTEM  TEST  MENU                           │
└─────────────────────────────────────────────┘
   Calories      Distance      Time     Incline      Speed
```

"USE ARROW KEYS TO SCROLL THROUGH THE LIST"

Using any of the arrow keys will allow you to scroll through the thirteen system tests.

SYSTEM TEST	DISPLAY TEST
MAIN MOTOR TEST	REAL TIME CLOCK TEST
LIFT MOTOR TEST	FRAME TAG EEPROM TEST
BELT/DECK TEST	CONSOLE EEPROM TEST
LIFEPULSE TEST	LIFECENTER TEST
TELEMETRY TEST	CSAFE TEST
SMART STOP TEST	

Press the 'ENTER' key to access the sub-category.
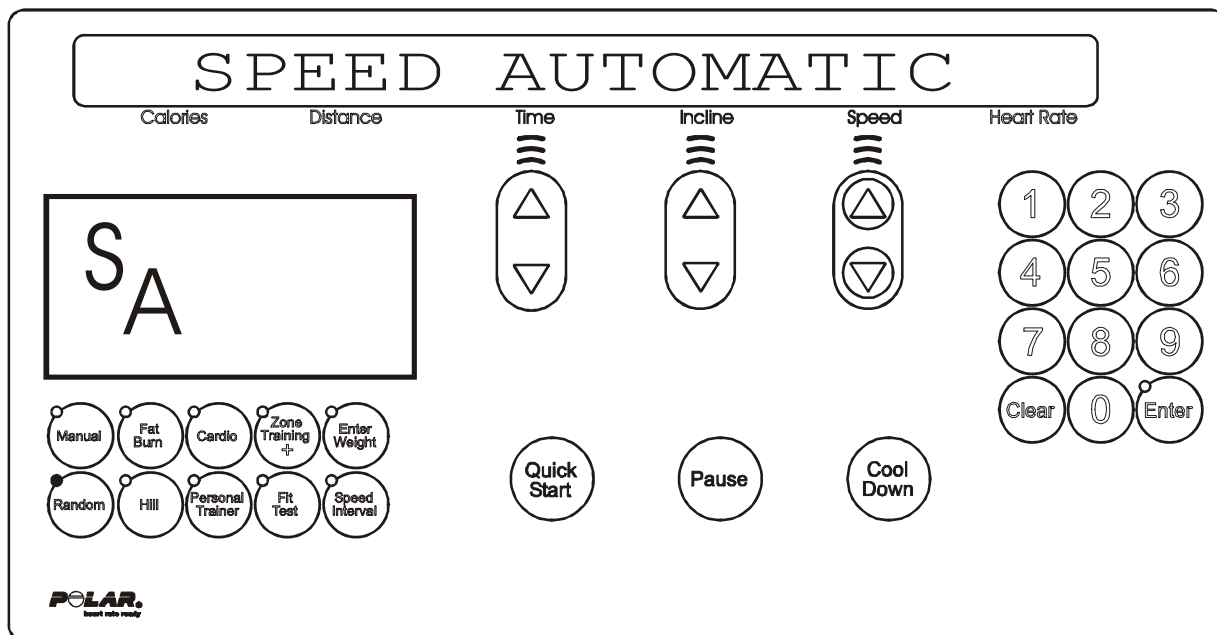
During this test, the letters SA (Speed Automatic) will appear in the profile window. A TARGET speed is then selected via the speed ARROW keys. The TARGET and ACTUAL speed is calculated by the optical speed sensor and displayed in the message center.

The incline system can be adjusted during this test. The display will show the incline status briefly when any incline keys have been pressed, and then revert to speed information.

► Press the CLEAR key to exit the SPEED AUTOMATIC test and return to the SYSTEM TEST MENU.
► Press the ENTER key to advance to the SPEED MANUAL test.
► Press the CLEAR key multiple times until the message SYSTEM INITIALIZING is displayed to exit diagnostic mode.
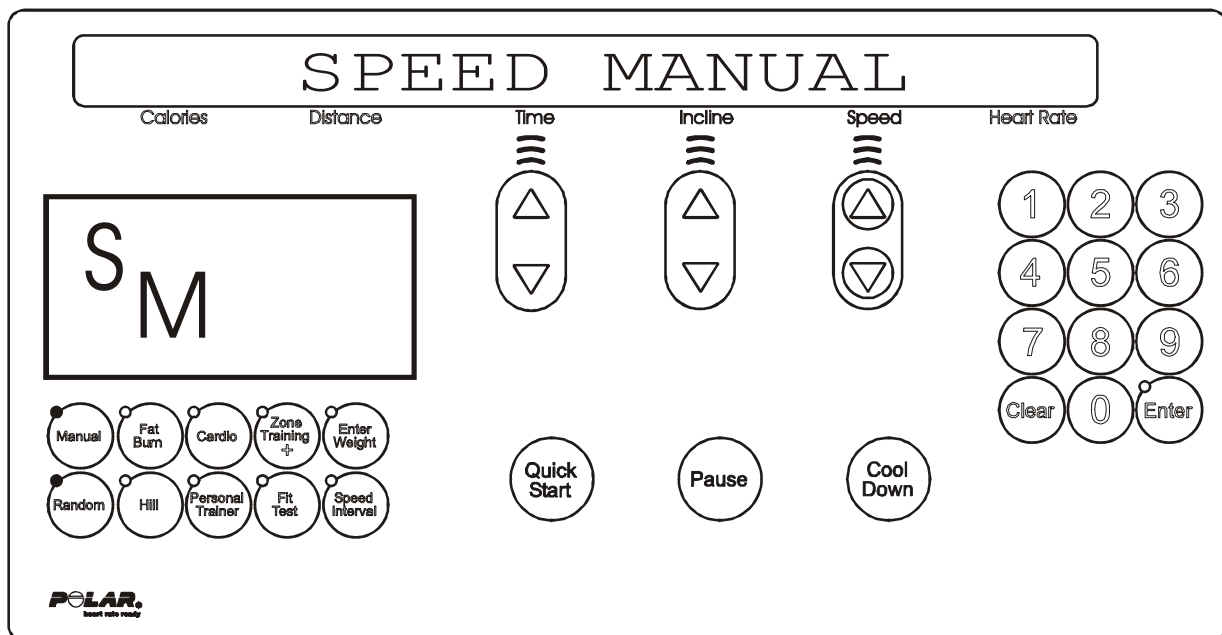
During this test, the letters SM (Speed Manual) will be displayed in the profile window. A TARGET motor RPM is selected via the speed ARROW keys. The TARGET and ACTUAL motor is calculated by the optical speed sensor and is displayed in the message center.

The incline system can be adjusted during this test. The display will show the incline status briefly when either incline key have been pressed, and then reverts to motor RPM information.

► Press the CLEAR key to exit the SPEED MANUAL test and return to the SPEED AUTOMATIC test.
► Press the ENTER key to advance to the CONTROLLER ERRORS test.
► Press the CLEAR key multiple times until the message SYSTEM INITIALIZING is displayed to exit diagnostic mode.
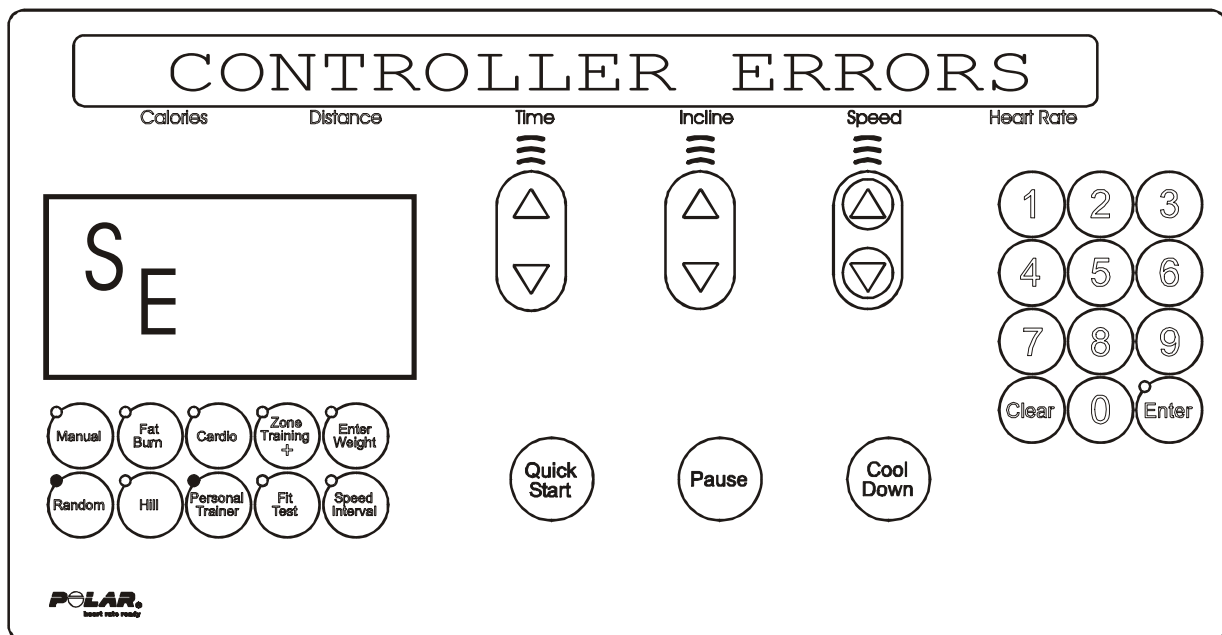
Upon entry into this state the letters SE (speed errors) will be in the profile window. Upon entry into this state allows you to see the current motor controller error conditions that are being displayed on the motor controller display. The following is a list of the current motor error conditions. If an error is displayed, refer to the troubleshooting section for corrective action.

CURRENT MOTOR ERROR CONDITIONS

POWER UP RESET ERROR	DYNAMIC CURRENT TRIP
STATIC CURRENT TRIP	FAULT LINE 1 ERROR
MAX TEMPERATURE TRIP	SCI ERROR
MAXIMUM VOLTAGE TRIP	SPEED SENSOR ERROR

Press the 'CLEAR' key to exit the Speed Controller Errors test and return to the Speed Manual test.
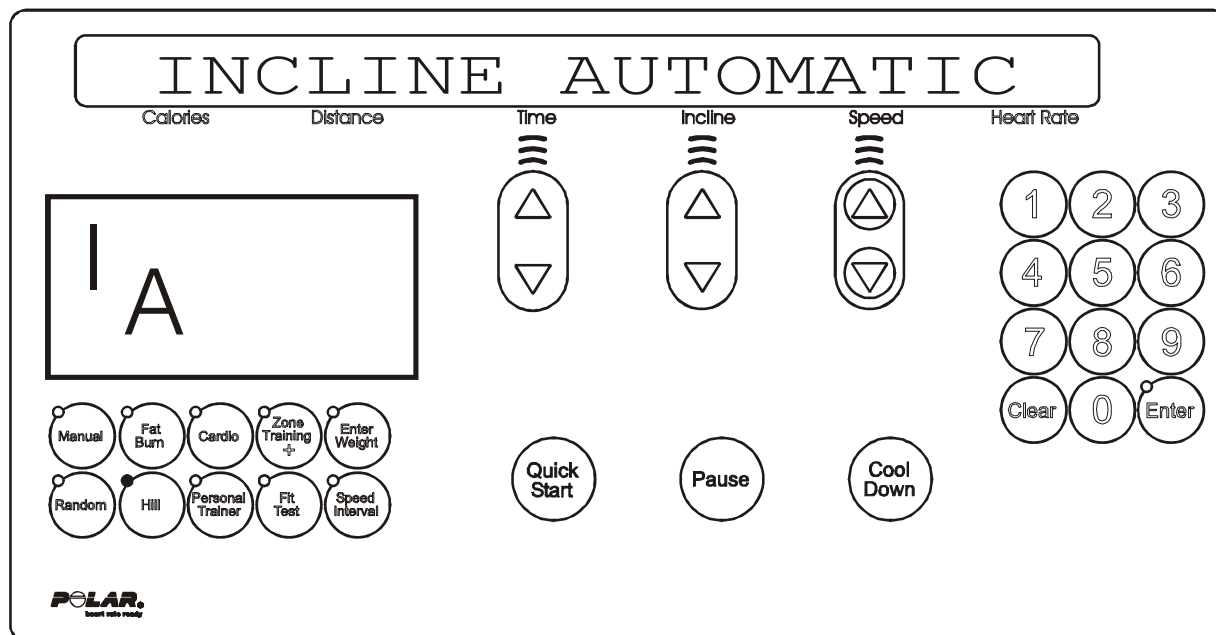
During this test, the letters IA (Incline Automatic) appear in the profile window. A TARGET incline angle is selected via the incline ARROW keys. Both the TARGET and ACTUAL incline are shown in the message center along with a COUNT that defines the movement request in software terms.

For non-decline units: The state of the level switch will be displayed in the profile window. A zero "0" displayed in the profile window shows the level switch in the closed position. As the unit is inclined the zero "0" displayed should disappear to indicate that the level switch is functioning.

For decline units: The state of the level switch will be displayed in the profile window. A zero "0" displayed in the profile window shows the level switch in the closed position. As the unit is inclined the zero "0" displayed should disappear to indicate that the level switch is functioning.

The speed system can be activated in this test as well. However, the display will only show the target speed for two seconds while the speed keys are being pressed. It will then return to showing the incline information.

Press the 'CLEAR' key to exit the Incline Automatic test and return to the System Test Menu.
Press the 'ENTER' key to advance to the Incline Manual test.
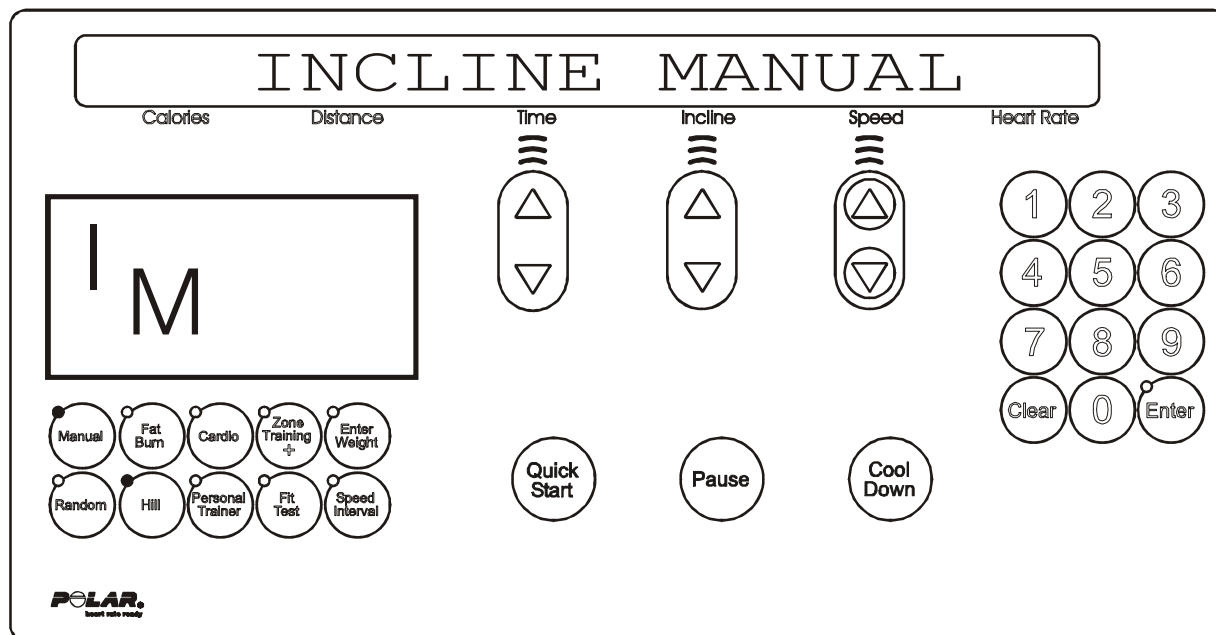
During this test, the letters IM (INCLINE MANUAL) appear in the profile window. This test allows operation of the lift motor via the incline ARROW keys. The COUNT defines the movement request in software terms, and ACTUAL incline is displayed in the message center. The state of the level and negative incline switches will be displayed in the profile window.

For non-decline units: The state of the level switch will be displayed in the profile window. A zero "0" displayed in the profile window shows the level switch in the closed position. As the unit is inclined the zero "0" displayed should disappear to indicate that the level switch is functioning.

For decline units: The state of the level and negative incline switches will be displayed in the profile window. A zero "0" displayed in the profile window shows the level switch in the closed position. As the unit is declined the zero "0" displayed should disappear and a "–4" should appear in the profile window. This verifies that the negative switch is functioning (the "–4" will only appear in incline manual mode).

The speed system can be activated in this test as well. However, the display will only show the target speed for two seconds while the speed keys are being pressed. It will then return to show the incline information.

Press the 'CLEAR' key to exit the Incline Manual test and return to the Incline Automatic test.
Press the 'ENTER' key to advance to the Incline Errors test.
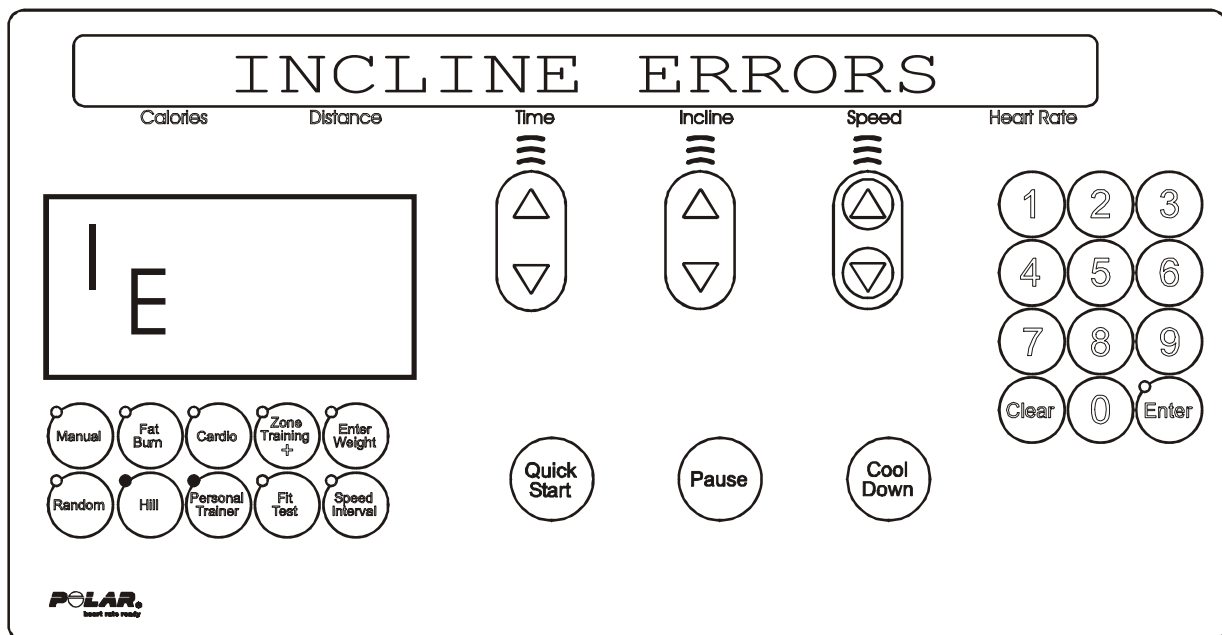
Upon entry into this state the letters IE (incline errors) will be in the profile window. Upon entry into this state allows you to see the current lift motor error conditions. The following is a list of the current lift motor error conditions. If an error is displayed, refer to the troubleshooting section for corrective action.

CURRENT LIFT MOTOR ERROR CONDITIONS

INCLINE TIMEOUT ERROR   NEGATIVE SWITCH ERROR
HOME SWITCH ERROR   NO AC POWER ERROR

Press the 'CLEAR' key to exit the Incline Errors test and return to the Incline Manual test.

This test allows the user to check the belt and deck condition. This test acts as a wattage meter. It will give the user the percentage of power, wattage, bus voltage, and temperature readings.

The following messages will scroll:

RELATIVE POWER METER

| Calories | Distance | Time | Incline | Speed |

RECOMENDED SPEED ABOVE 3.5 MPH

| Calories | Distance | Time | Incline | Speed |

The initial information displayed will be:

PERCENT XXX WATT XXX

| Calories | Distance | Time | Incline | Speed |

Where **XXX** will indicate real values.
PERCENT is the percentage of available power. It will range from 0 to 100%.
WATT is the wattage measured by the motor controller to move the belt ranging from 340 to 1200 watts.

By pressing the '**COOL-DOWN**' key, the display will toggle to the information displayed below.

VOLTAGE XXX TEMP XX 'C

| Calories | Distance | Time | Incline | Speed |

Where **XXX** will indicate real values.
VOLTAGE is the bus voltage of the motor controller. It is not the input line voltage.
TEMP is the temperature measure of the motor controller heat sink in Celsius.

The display will lock on the current information if the 'PAUSE' key is pressed.

The speed system and incline systems can be activated in this test. However, the display will only show the target speed or incline for two seconds while the speed/incline keys are being pressed. It will then return to showing the belt/deck information.

To test if the belt and deck need replacement: Using the 'SPEED' Up Arrow Key, walk on the unit at 3.5 mph for a minimum of 1 minute. Then run on the unit at 7.0 mph for a minimum of 1 minute. If the watts are higher than 1100, replace the belt and either flip or replace the deck.

Press the 'CLEAR' key to exit the Belt/Deck test and return to the System Test Menu.
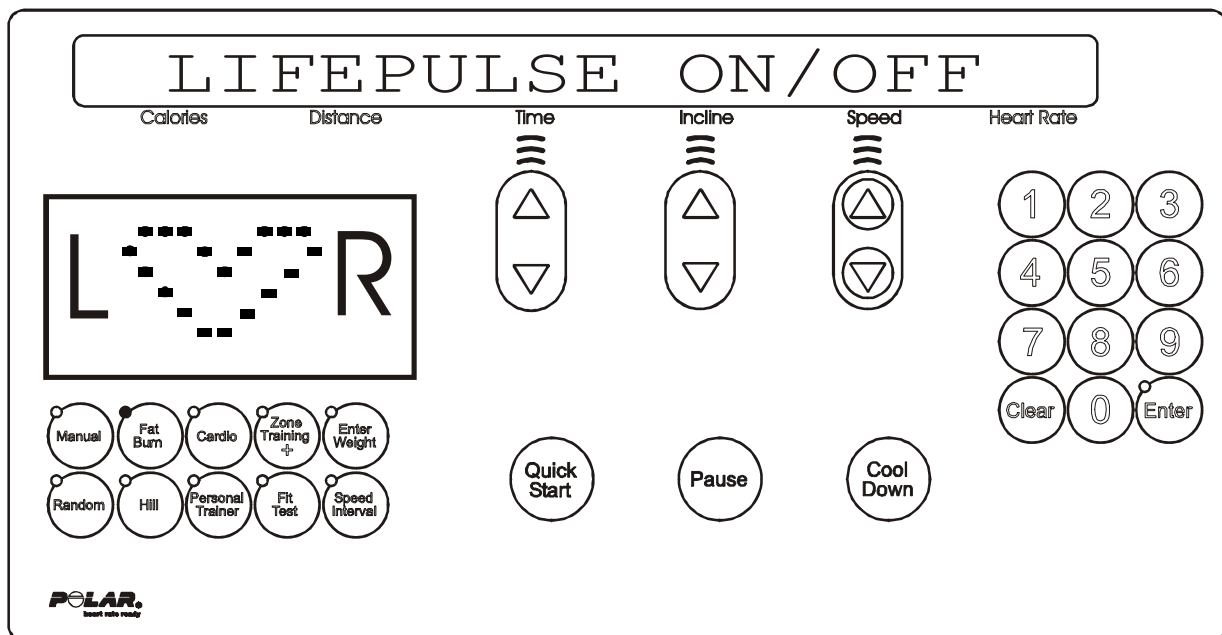
Upon entering the LifePulse® test, a heart shape will then appear in the profile window indicating that LifePulse® is ready to acquire a signal.

The system will now sense when either hand is in proper contact with the LifePulse® sensors by displaying an "L" (Left) or "R" (Right) next to the heart in the profile window.

Once the LifePulse® system acknowledges that both hands are in place on the sensors and providing the proper signals, a timer will start. The timer displays acquisition time. Once heart rate data is displayed, the counter will stop.

ON/OFF	Status of LifePulse® feature. **NOTE - This test will not function if the LifePulse® feature has been disabled.**
GAIN (0-99)	Value displayed is proportional to the amount of signal that is being provided by the LifePulse® sensors. The higher the gain values the lower the signal that is being evaluated by the LifePulse® system.
CONfidence (0-9)	Value displayed that indicates a confidence level for heart rate values displayed. Higher confidence readings indicate that LifePulse® is providing accurate readings while low confidence readings most often indicate poor contact with hand sensors.

Both the speed and incline systems can be adjusted during this test. The display will show this information briefly when any incline or speed keys have been pressed, and then revert to LifePulse® information.

► Press the CLEAR key to exit the LIFEPULSE® TEST and return to the SYSTEM TEST Menu.
► Press the CLEAR key multiple times until the message SYSTEM INITIALIZING is displayed to exit diagnostic mode.

SPECIAL SERVICE TOOLS REQUIRED: POLAR® CHEST STRAP OR PULSE SIMULATOR
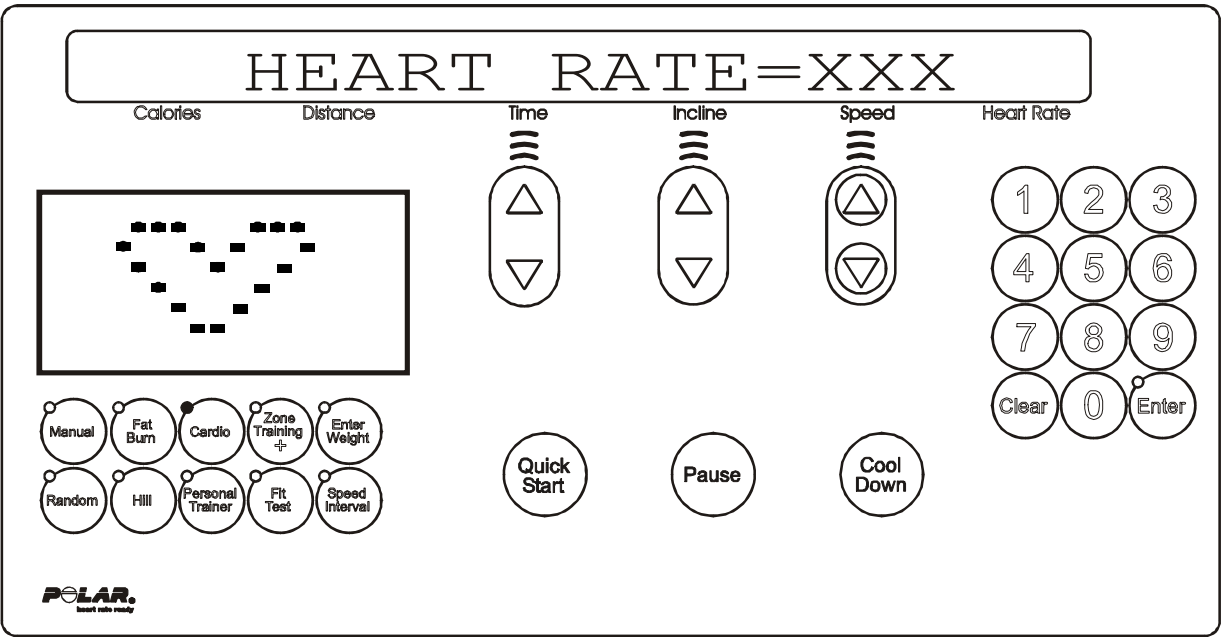
The ENTER LED will flash (at heart rate) when the telemetry feature is on and the receiver is getting a signal from the Polar® transmitter. The heart rate value being transmitted by the Polar® strap will be displayed in the message center.

NOTE – This test requires a Polar® compatible chest strap or pulse simulator.

ON/OFF	Status of telemetry feature. **NOTE - This test will not function if the telemetry feature has been disabled.**
XXX	Indicates integer value.

► Press the CLEAR key to exit the Heart Rate TELEMETRY test and return to the SYSTEM TEST MENU.
► Press the CLEAR key multiple times until the message SYSTEM INITIALIZING is displayed to exit diagnostic mode.
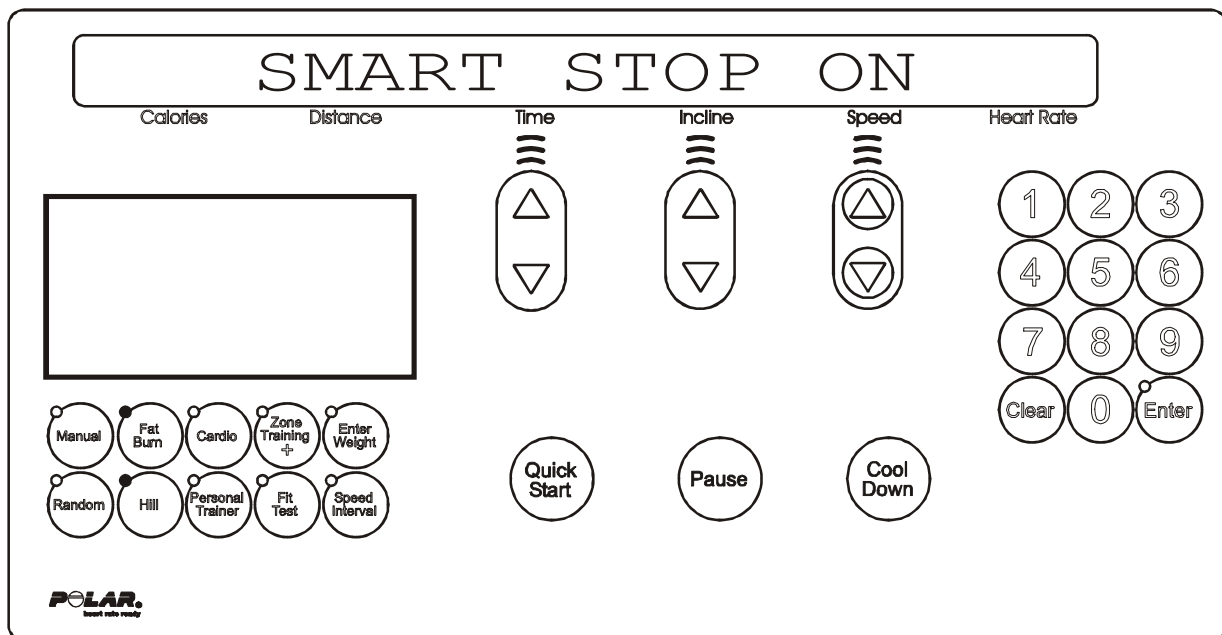
Upon entry into the test, if the smart stop PCB is not plugged in, a message will be displayed "Smart Stop Unplugged". This test will allow the user to test the Smart Stop System. If the smart stop system detects a user it will scroll the profile window from empty to full depending on the percentage of detection that is occurring. Other smart stop information will scroll automatically every 3 seconds.

The following is a list of the current information that can be seen. If an error has occurred, refer to the troubleshooting section for corrective action.

ERROR CONDITION	DISPLAYED INFORMATION
SMART STOP UNPLUGGED	SMART STOP ON
	SMART STOP OFF
	USER DETECTED
	USER NOT DETECTED
	SMART STOP ADJUST-XX

The smart stop system can be turned ON/OFF in this test. When the message "SMART STOP ON" is placed on the message center, an arrow key will toggle it to "SMART STOP OFF".

The display can be put into a locked mode by pressing the 'PAUSE' key. This will prohibit the scrolling of the smart stop information.

Pressing the 'CLEAR' key to exit the smart stop test and return to the System Test Menu.

This test will light each individual segment per character until complete. It will then light each character separately until all characters have been lit. Each individual led will be tested also. If the 'PAUSE' key is pressed, the sequence will halt and remain there until the 'PAUSE' is pressed again.

Pressing the 'PAUSE' key can LOCK the display. This will prohibit the scrolling of the LED's.
Pressing the 'CLEAR' key to exit the Walking Led test and return to the Keypad test.
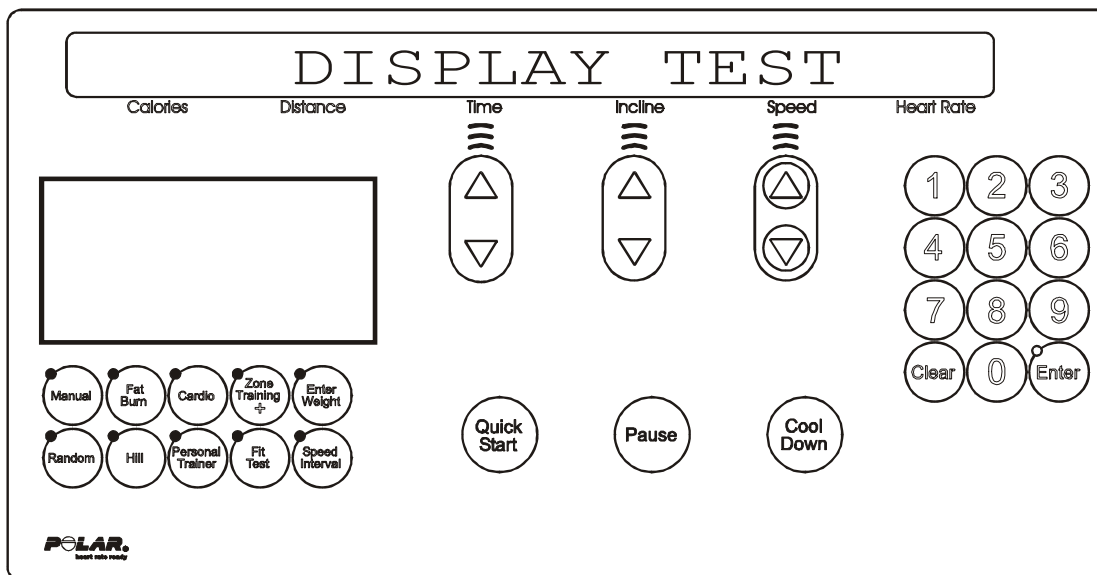
Upon entry to this test, all lights will be turned ON. This test will allow the user to test the display console.

Pressing keys will result in a beep sound and, for all but the 'ENTER' and 'CLEAR' keys, a character will be repeated across the message center display.

KEYS	DISPLAYED CHARACTER	KEYS	DISPLAYED CHARACTER
0	'0'	FIT TEST	'L'
1	'1'	TIME UP	'N'
2	'2'	INCLINE UP	'P'
3	'3'	SPEED UP	'Q'
4	'4'	TIME DOWN	'R'
5	'5'	INCLINE DOWN	'T'
6	'6'	SPEED DOWN	'U'
7	'7'	QUICK	'V'
8	'8'	PAUSE	'W'
9	'9'	COOL DOWN	'X'
MANUAL	'C'	STOP	'Y'
FAT BURN	'D'	DOWN	'Z'
CARDIO	'E'	UP	'S'
RANDOM	'H'	ZONE TRAINING +	'F'
HILL	'J'	SPEED INTERVAL	'M'
PERSONAL TRAINER	'K'	ENTER WEIGHT	'G'

Pulling the Emergency Stop switch will result in the message:
'REPLACE EMERGENCY STOP SWITCH'.

Pressing the 'CLEAR' key to exit the Display test and return to the System Test Menu.
Pressing the 'ENTER' key will advance to Walking Led test.
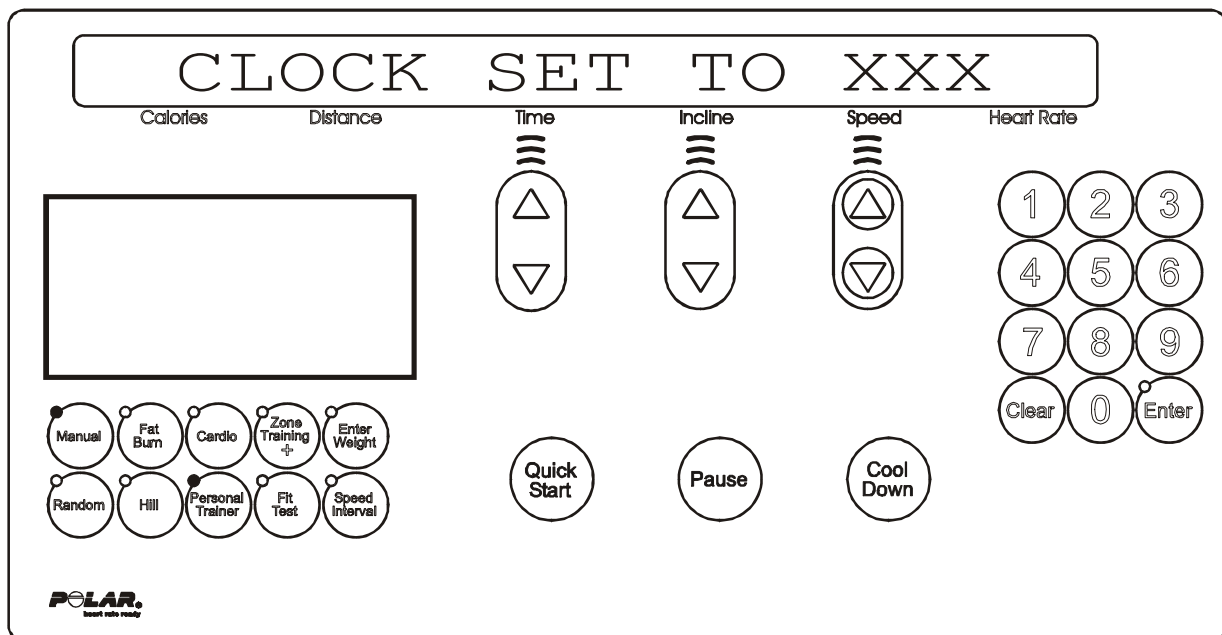
This test allows the user to see the current time set on the frame tag real time clock. If the communication is bad or the frame tag is unplugged the following messages will appear. Refer to the troubleshooting section for corrective action.

        FRAME CLOCK COMM BAD
        FRAME TAG UNPLUGGED

If there are no errors, a message concerning whether the clock is set the local time or default "Greenwich Mean Time". Either message may appear:
        "CLOCK SET TO LOCAL" or
        "CLOCK SET TO GMT"

The message will be followed by the current real time clock information.
Press the 'CLEAR' key to exit the Frame Tag Real Time Clock test and return to the System Test Menu.
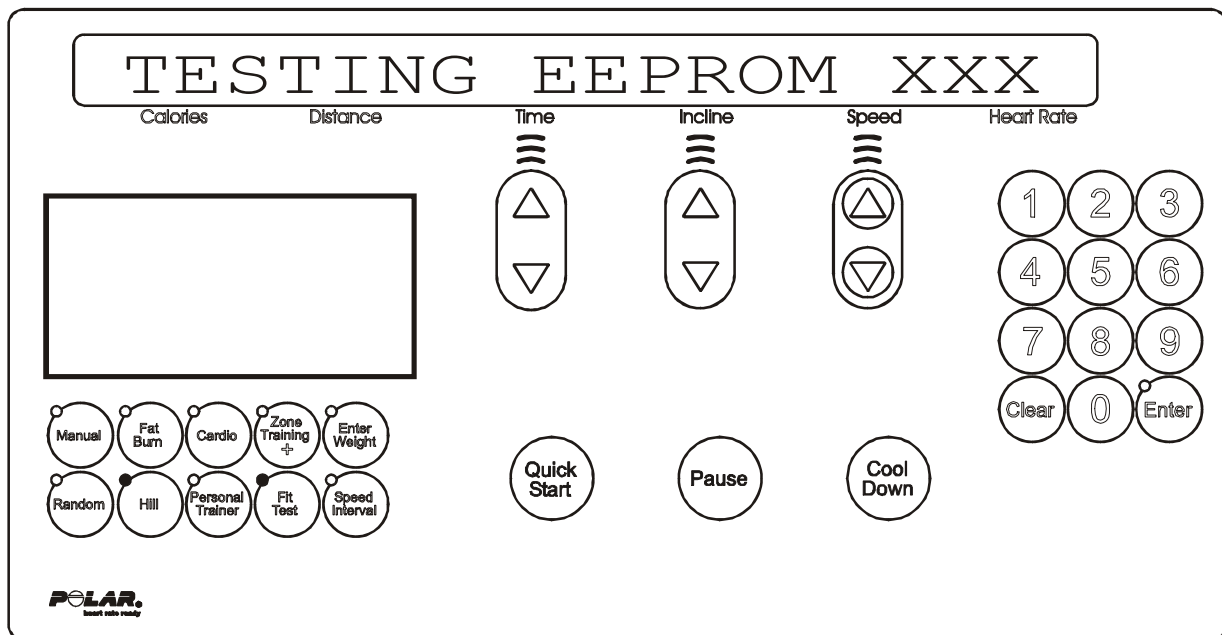
This test allows the user to test the frame tag EEPROM. This test will read/write/replace all used locations in the frame tag EEPROM. If there is an error, the bad location will be displayed. The following is a list of current information that can be seen. If an error has occurred, refer to the troubleshooting section for corrective action.

ERROR CONDITION	DISPLAYED INFORMATION
FRAME EEPROM COMM BAD	TESTING FRAME EEPROM
FRAME TAG UNPLUGGED	EEPROM TESTED GOOD
	EEPROM BAD AT XX

Press the 'CLEAR' key to exit the Frame Tag EEPROM test and return to the System Test Menu.
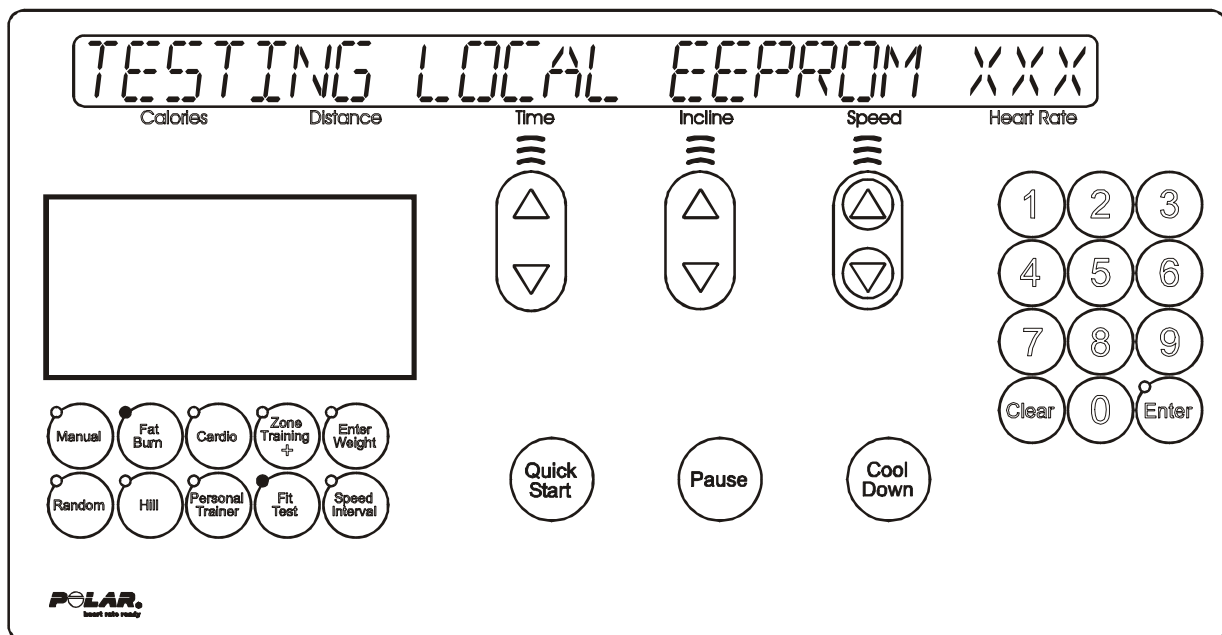
This test allows the user to test the display console EEPROM. This test will read/write/replace all used locations in the display console EEPROM. The EEPROM location being tested will be displayed in the heart rate window. If there is an error, the bad location will be displayed.

The following is a list of current information that can be seen. If an error has occurred, refer to the troubleshooting section for corrective action.

DISPLAYED INFORMATION	ERROR CONDITION
TESTING LOCAL EEPROM	EEPROM BAD AT XX
EEPROM TESTED GOOD	

Press the 'CLEAR' key to exit the Display Console EEPROM test and return to the System Test Menu.
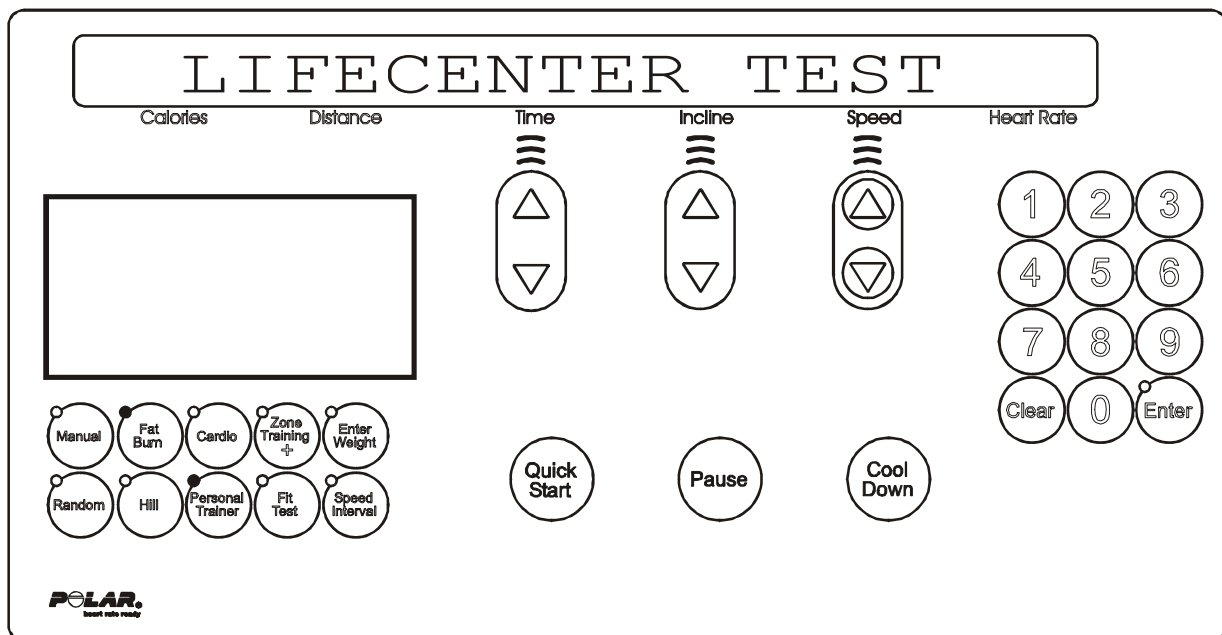
This test will give information concerning whether there is a lifecenter system connected to the treadmill. The following is a list of the current information that can be seen:

        NONE
        NULL - T-XX   R-XX
        OFF -   T-XX   R-XX
        ON -   T-XX   R-XX
        WAIT - T-XX   R-XX

The "T-XX" is the last transmitted message to the lifelink card.
The "R-XX" is the last received message from the lifelink card.

Press the 'CLEAR' key to exit the Lifecenter test and return to the System Test Menu.
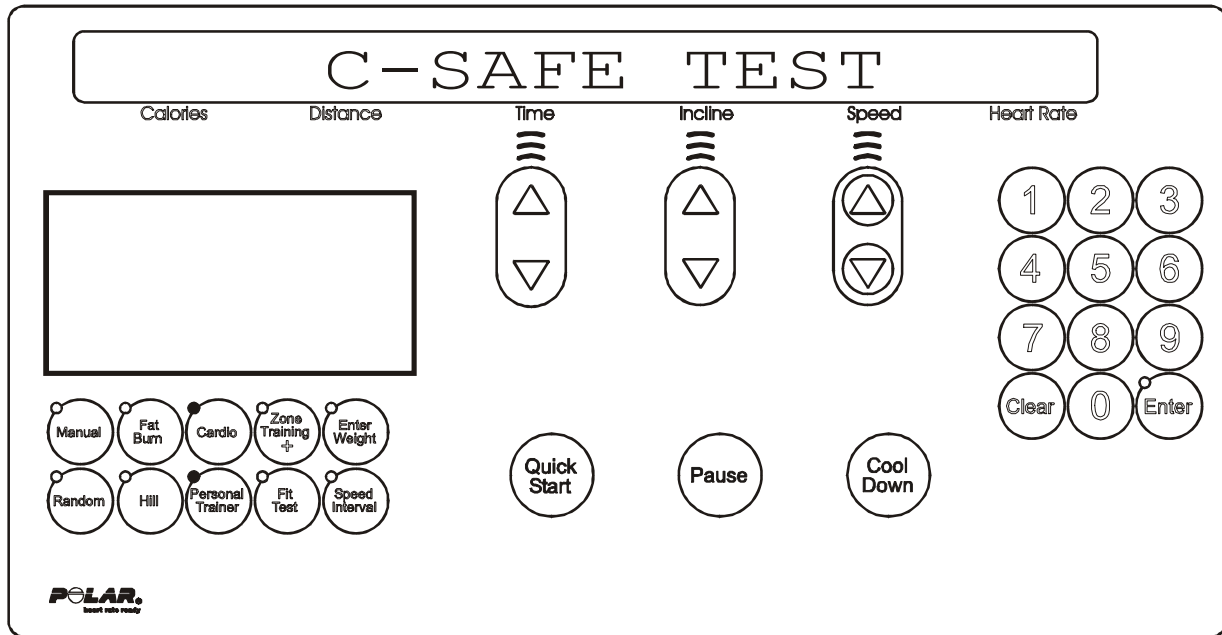
This test will give information concerning whether there is a CSAFE system connected to the treadmill. The following is a list of the current information that can be seen:

```
NONE
NULL -  T-XX   R-XX
OFF -   T-XX   R-XX
ON  -   T-XX   R-XX
WAIT -  T-XX   R-XX
```

The "T-XX" is the last transmitted message to the CSAFE card.
The "R-XX" is the last received message from the CSAFE card.

Press the 'CLEAR' key to exit the CSAFE test and return to the System Test Menu.

Upon entry into the area, the message is:

INFORMATION MENU

| Calories | Distance | Time | Incline | Speed | Heart Rate |

Followed by,

USE ARROW KEYS TO SCROLL THROUGH LIST

| Calories | Distance | Time | Incline | Speed |
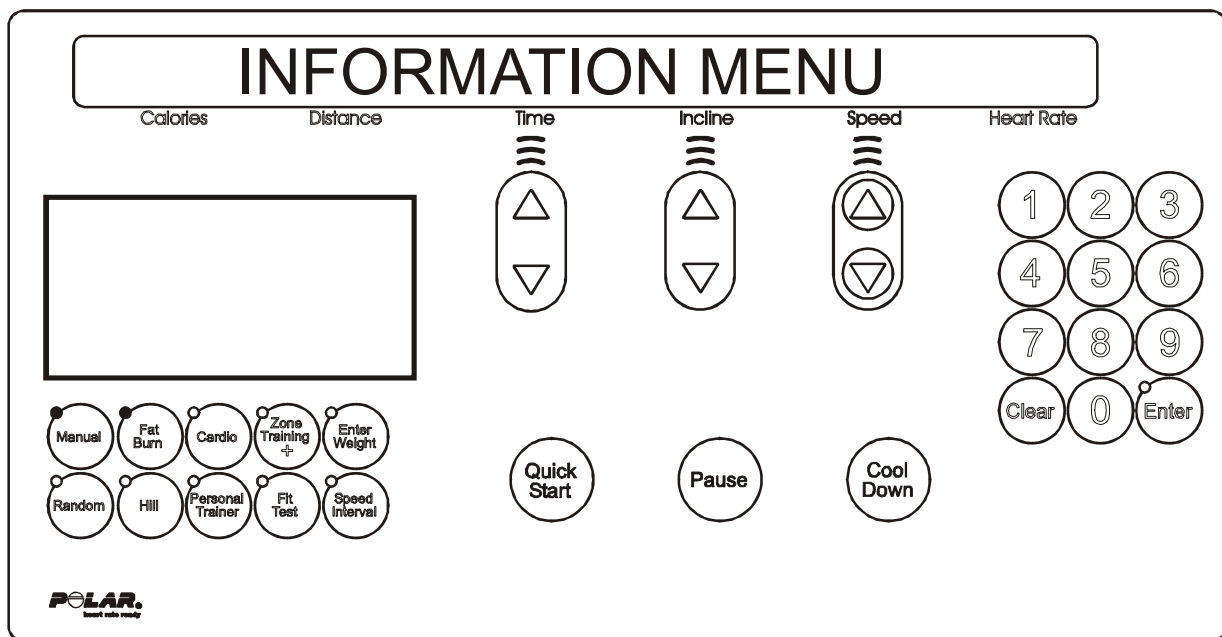
Using any of the arrow keys will allow you to scroll through the seven system information areas.

      SYSTEM STATISTICS
      SOFTWARE VERSIONS
      MAIN MOTOR INFORMATION
      LIFT MOTOR INFORMATION
      REAL TIME CLOCK INFORMATION
      SYSTEM ERRORS
      SYSTEM MAINTENANCE

Press the 'ENTER' key to enter the desired category.
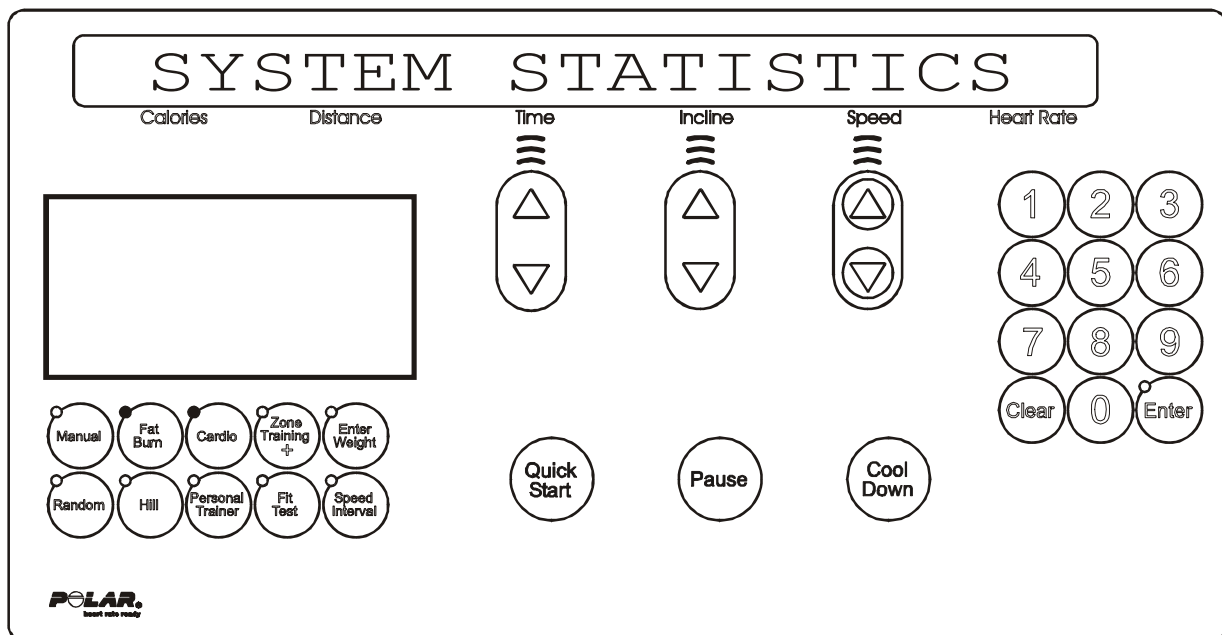
This area will allow the user to see system information concerning the following areas:

DISPLAYED INFORMTION

TOTAL HOURS
TOTAL MILES
BELT HOURS
BELT MILES
LIFT MINUTES
HILL PROGRAM SELECTIONS
RANDOM PROGRAM SELECTIONS

MANUAL PROGRAM SELECTIONS
FAT BURN PROGRAM SELECTIONS
CARDIO PROGRAM SELECTIONS
FIT TEST PROGRAM SELECTIONS
QUICK START PROGRAM SELECTIONS
CUSTOM 1-6 PROGRAM SELECTIONS
MISCELLANEOUS CUSTOM PROGRAM SELECTIONS
SPORT TRAINING PROGRAM SELECTIONS
SPEED INTERNAL PROGRAM SELECTIONS
ZONE TRAINING AND PROGRAM SELECTIONS

The information will automatically scroll every 3 seconds or using any of the arrow keys will allow you to scroll through the system statistics.

Pressing the 'PAUSE' key can LOCK the display. This will prohibit the scrolling of the information.
Press the 'CLEAR' key to exit the System Statistics and return to the System Info Menu.
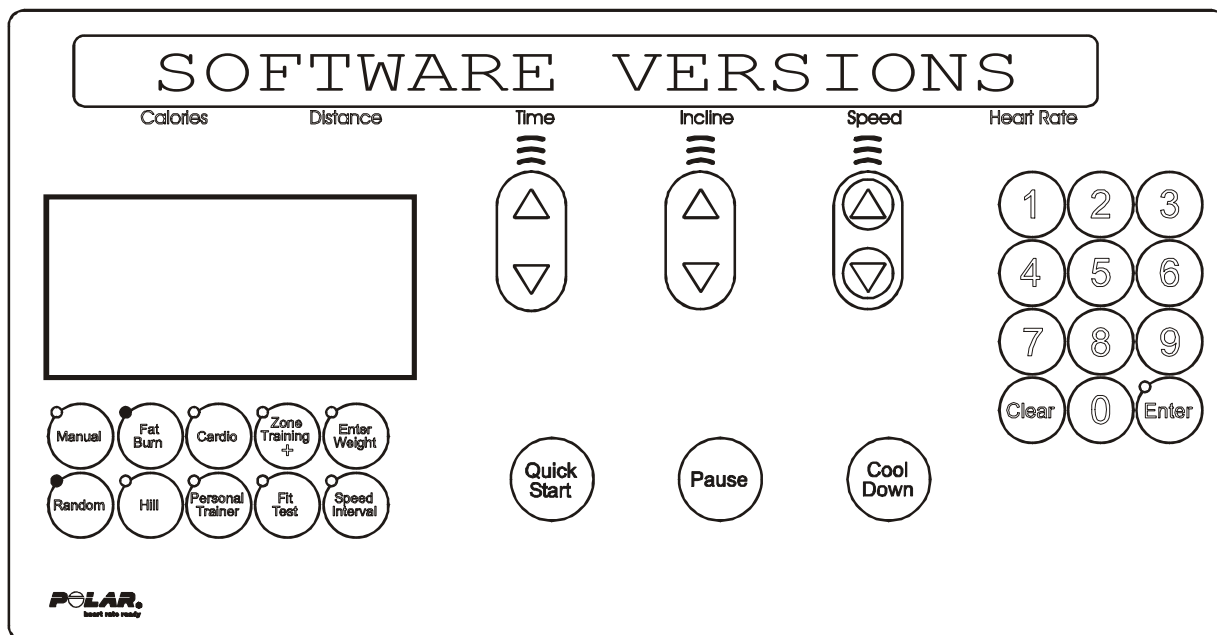
This area will allow the user to see system information concerning the following areas:

DISPLAYED INFORMATION

CONSOLE SOFTWARE VERSION
MOTOR CONTROLLER SOFTWARE VERSION

WAX/LIFT BOARD SOFTWARE VERSION
LIFEPULSE SOFTWARE VERSION
CSAFE VERSION
BOOT VERSION

The information will automatically scroll every 3 seconds or using any of the arrow keys will allow you to scroll through the system information.

Press the "QUICK START" Key to view the unit serial number.

Press the 'CLEAR' key to exit the Software Versions and return to the System Info Menu.
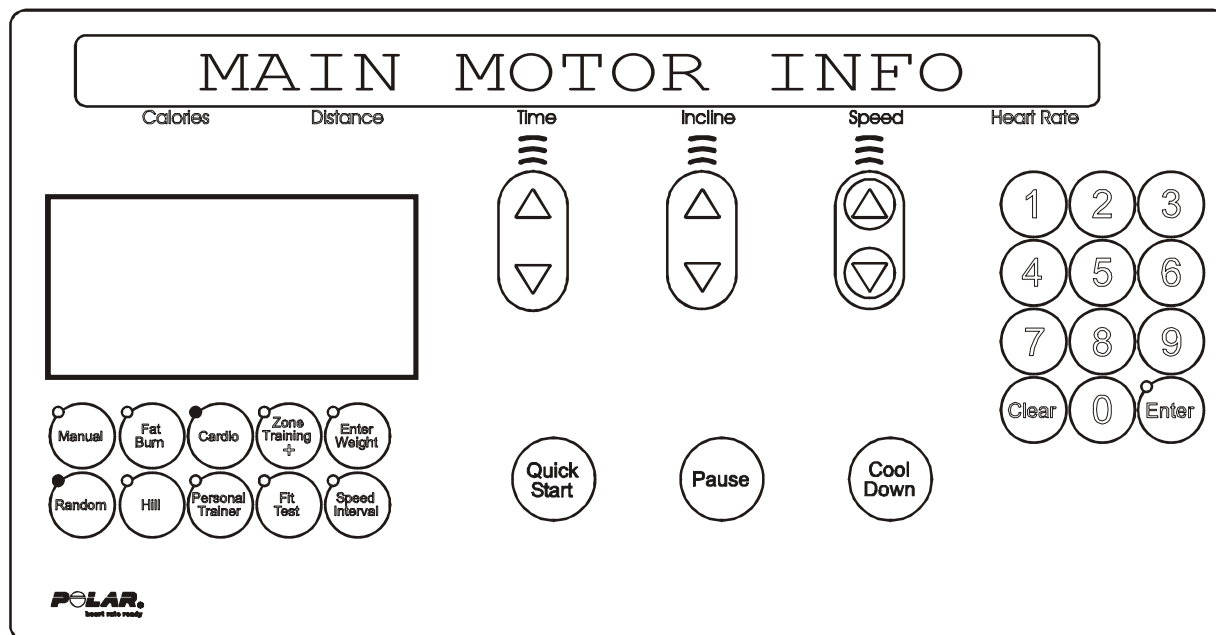
This area will allow the user to see the current information about the main motor and motor controller. The information will cover the following areas:

DISPLAYED INFORMATION

MOTOR MINUTES	NUMBER OF DYNAMIC CURRENT TRIP
NUMBER OF POWER UP RESETS	MAXIMUM STATIC CURRENT VALUE
NUMBER OF HARDWARE CURRENT ERRORS	MAXIMUM TEMPERATURE VALUE
NUMBER OF STATIC CURRENT TRIP	MAXIMUM VOLTAGE VALUE
NUMBER OF MAX TEMPERATURE TRIP	MAXIMUM DYNAMIC CURRENT VALUE
NUMBER OF MAXIMUM VOLTAGE TRIP	NUMBER OF SPEED SENSOR ERROR

The information will automatically scroll every 3 seconds or using any of the arrow keys will allow you to scroll through the main motor information.

Pressing the 'PAUSE' key can LOCK the display. This will prohibit the scrolling of the information.
Press the 'CLEAR' key to exit the Main Motor Info and return to the System Info Menu.
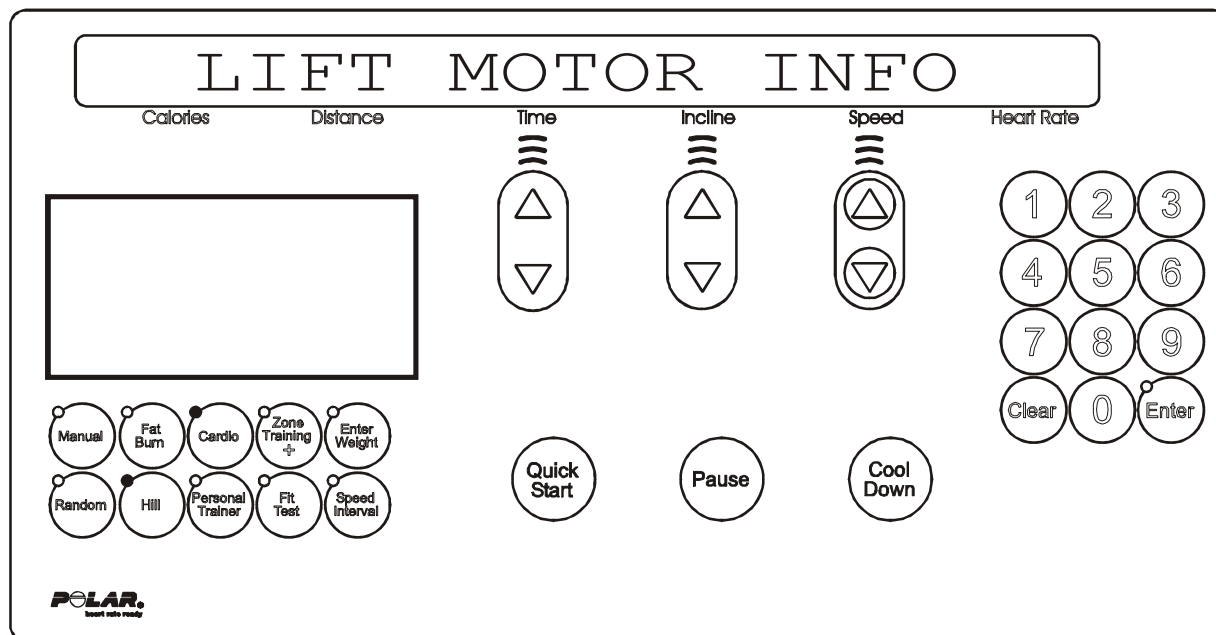
This area will allow the user to see the current information about the lift motor. The information will cover the following areas:

DISPLAYED INFORAMTION

1. UNIT CONFIGURATION – NEGATIVE OR NON-NEGATIVE
2. CURRENT LIFT ON TIME IN MINUTES
3. BUCKET (Refer to table)

BUCKET - INCLINE AT PERCENTAGE OF RANGE			
BUCKET 0	-3.0 TO -2.1 PERCENT	BUCKET 10	7.0 TO 6.1 PERCENT
BUCKET 1	-2.0 TO - 1.1 PERCENT	BUCKET 11	8.0 TO 7.1 PERCENT
BUCKET 2	-1.0 TO –0.1 PERCENT	BUCKET 12	9.0 TO 8.1 PERCENT
BUCKET 3	0.0 PERCENT	BUCKET 13	10.0 TO 9.1 PERCENT
BUCKET 4	1.0 TO 0.1 PERCENT	BUCKET 14	11.0 TO 10.1 PERCENT
BUCKET 5	2.0 TO 1.1 PERCENT	BUCKET 15	12.0 TO 11.1 PERCENT
BUCKET 6	3.0 TO 2.1 PERCENT	BUCKET 16	13.0 TO 12.1 PERCENT
BUCKET 7	4.0 TO 3.1 PERCENT	BUCKET 17	14.0 TO 13.1 PERCENT
BUCKET 8	5.0 TO 4.1 PERCENT	BUCKET 18	15.0 TO 14.1 PERCENT
BUCKET 9	6.0 TO 5.1 PERCENT		

The information will automatically scroll every 3 seconds or using any of the arrow keys will allow you to scroll through the wax motor information.

Pressing the 'PAUSE' key can LOCK the display. This will prohibit the scrolling of the information.
Press the 'CLEAR' key to exit the Wax Motor Info and return to the System Info Menu.
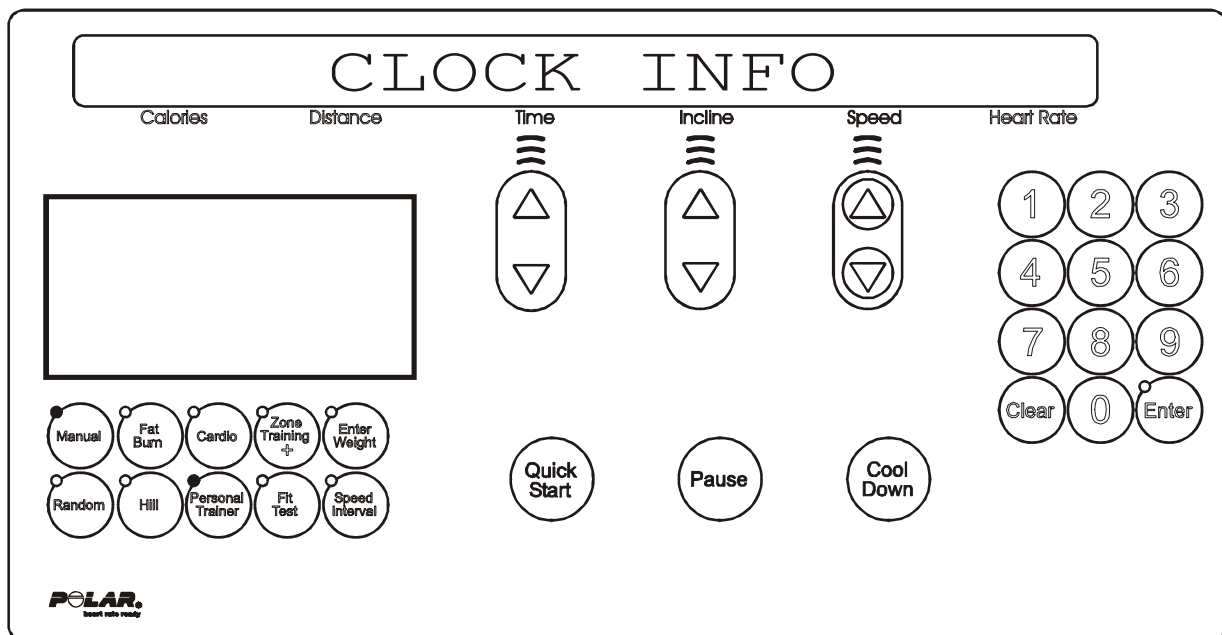
This area will allow the user to see the current information about the real time clock. The information will cover the following areas:

DISPLAYED INFORMATION

FRAME CLOCK COMM BAD
FRAME TAG UNPLUGGED
CURRENT SETTING FOR REAL TIME CLOCK

Press the 'CLEAR' key to exit the Real Time Clock Info and return to the System Info Menu.
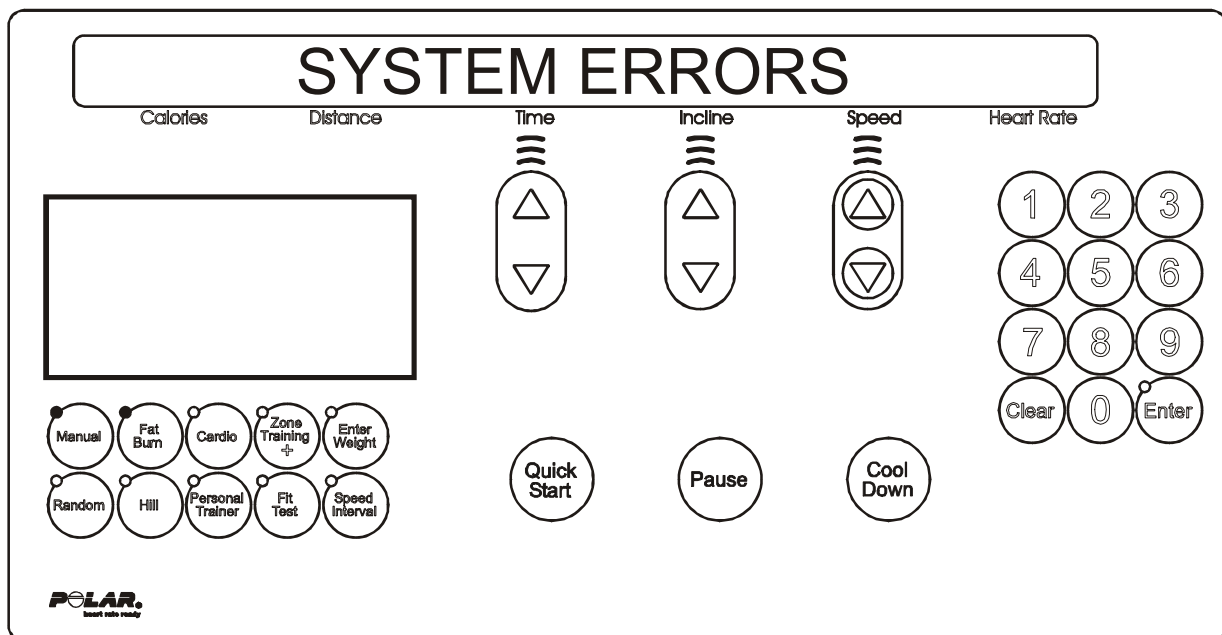
This area will allow the user to see the last 25 logged system errors. The error information will be displayed from the most recently logged to the oldest. Each system error will be displayed in the following format.

This format allows the user to scroll through all logged system errors without seeing any error details. The system errors will be scrolled automatically every 3 seconds or can be scrolled by using any of the arrow keys.

If the user wants to see the details about an error condition, the user must press the 'ENTER' key when the error title is displayed on the message center.

When the 'ENTER' key is pressed, all of the error log details will begin to display. These error details will scroll automatically every 3 seconds or can be scrolled by using any of the arrow keys.

Press the 'CLEAR' key to go back to just seeing the error titles.
Press the 'CLEAR' key to exit the System Errors and return to the System Info Menu.
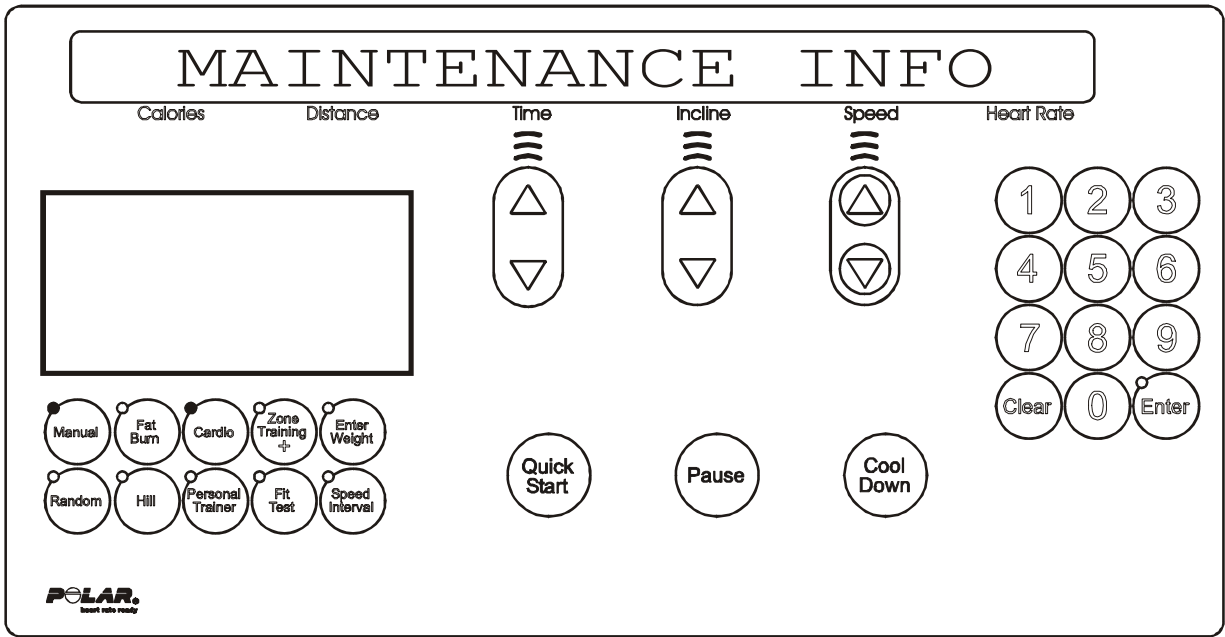
This area will allow the user to see the last 12 logged system repairs. The repair information will be displayed from the most recently logged to the oldest. Each system repair will be displayed in the following format.

| Calories | Distance | Time | Incline | Speed |

This format allows the user to scroll through all logged system repairs without seeing any repair details. The system repairs will be scrolled automatically every 3 seconds or can be scrolled by using any of the arrow keys.

If the user wants to see the details about a repair procedure, the user must press the 'ENTER' key when the repair title is displayed on the message center.

When the 'ENTER' key is pressed, all of the repairs procedure details will begin to display. These repair details will scroll automatically every 3 seconds or can be scrolled by using any of the arrow keys.

Press the 'ENTER' key to view system repair procedure. Detail repair log as needed.
Press the 'CLEAR' key to exit the System Repair and return to the System Info Menu.

Upon entry into the area, the message is:
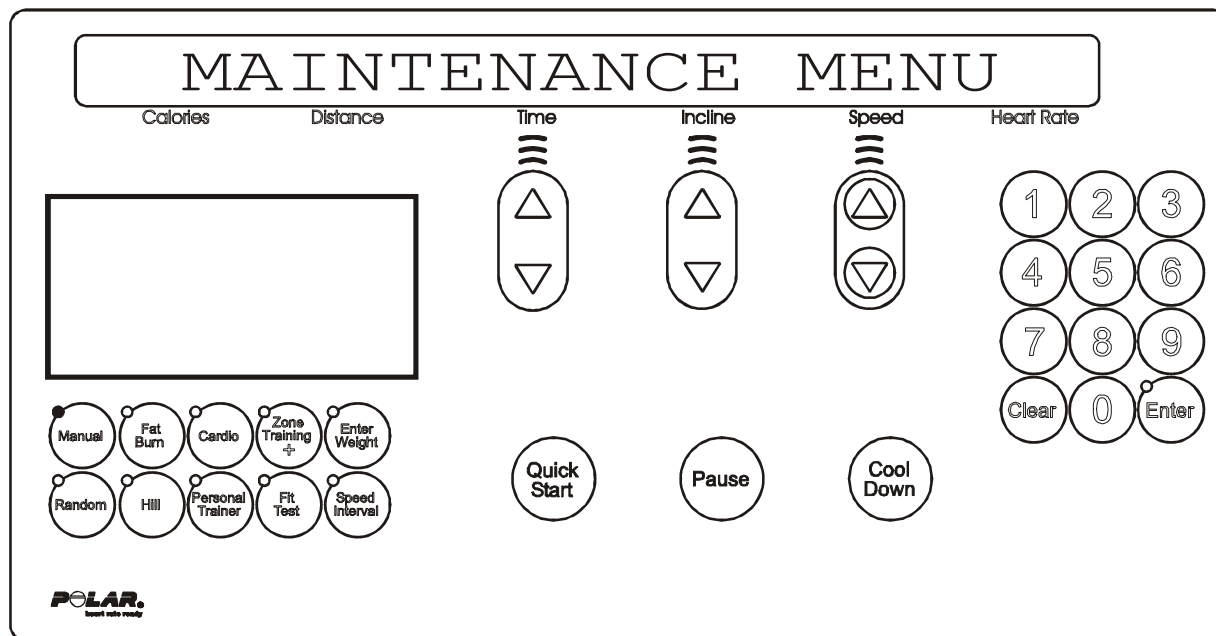
Followed by,

Using any of the arrow keys will allow you to scroll through the ten system maintenance procedures.

REPLACING BELT AND DECK	REPLACING STOP SWITCH
REPLACING CONSOLE	REPLACING OVERLAY BEZEL
REPLACING MOTOR CONTROLLER	REPLACING MAIN MOTOR
REPLACING WAX LIFT BOARD	REPLACING LIFT MOTOR

Press the 'ENTER' key to choose the desired procedure.

Upon the selection of the desired procedure, the system will gather all-important information concerning that procedure and log the procedure and details to the frame tag EEPROM. Upon successful completion of the log, the message "REPAIR LOGGED" will be displayed.

Press the 'CLEAR' key to exit the System Maintenance and return to the Service Menu.

DIAGNOSTICS: CONFIGURATION MENU

Upon entry into the area, the message is:
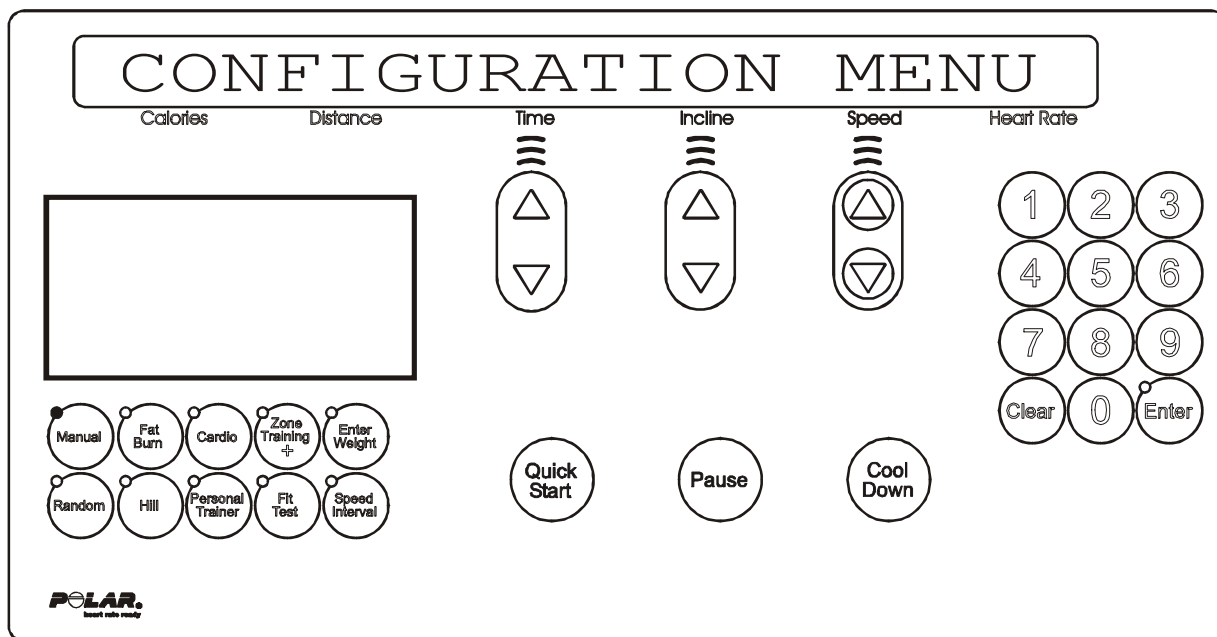
Followed by,

Using any of the arrow keys will allow you to scroll through the three system configuration areas.

> MANAGER CONFIG
> MANUFACTURE CONFIG
> CLOCK CONFIG

Press the 'ENTER' key to choose the desire area.
Press the 'CLEAR' key to exit the Configuration Menu and return to the Service Menu.
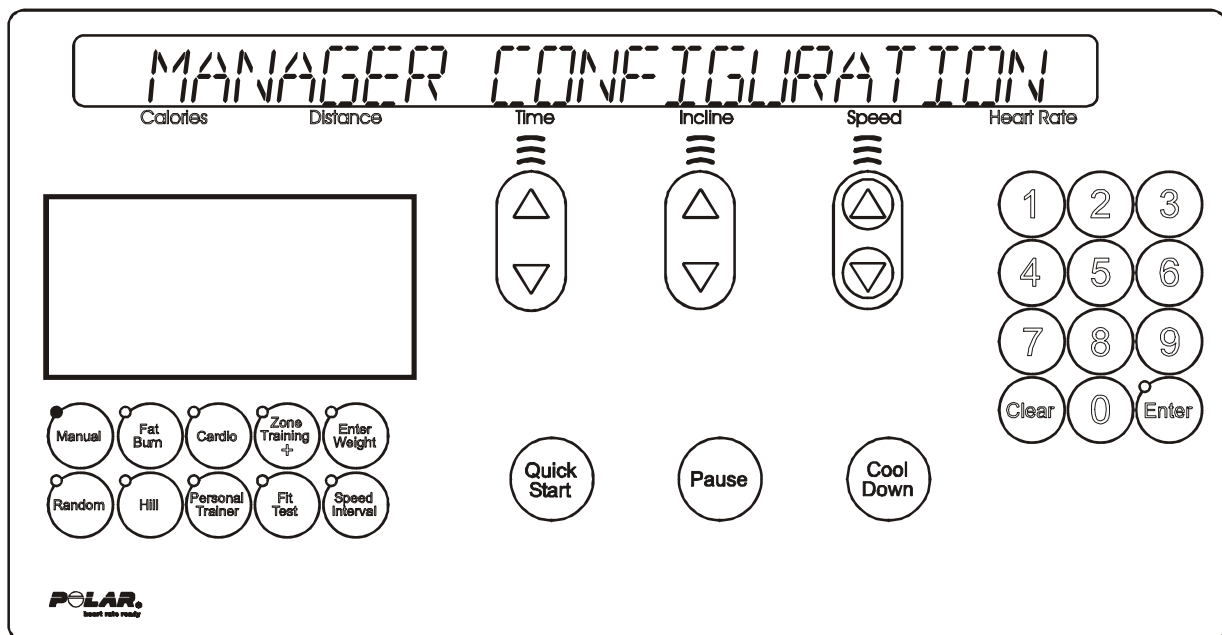
The information will automatically scroll every 3 seconds or using the 'TIME UP' or 'TIME DOWN' arrow keys will allow you to scroll through the configuration items.

The information can be changed when the item is displayed in the message center by using any of the remaining arrow keys to change the value.

This area will allow the user to see the current configuration about the system. The information will cover the following areas:

CONFIGURATION SETTING	FACTORY DEFAULT	DESCRIPTION
LANGUAGE SETUP	ENGLISH	Nine different languages can be selected: English, Dutch, Italian, Portuguese, German, French, Japanese, Spanish, and Turkish.
MAXTIME SETUP	OFF	This feature enables fitness club managers to set workout duration limits during peak and non-peak hours of club traffic. If the setup is OFF, no duration limits are set.
STANDBY MODE SETUP	OFF	This feature enables fitness club manager to set periods at which the treadmill automatically powers up or powers down.
ENGLISH/METRIC UNITS	ENGLISH	The measurement unit type for weight, distance, and speed.
CUSTOM WORKOUT ENTRY	N/A	The trainer can define up to 6 different workouts consisting of a series of intervals (30), of a fixed duration in seconds, each containing a pre-defined incline, target heart rate percentage, or speed.
TELEMETRY	ON	Switching ON the telemetry feature makes it possible to use the Polar® compatible Heart Rate Zone Training exercise chest strap to monitor the heart rate.
SMART STOP	ON	This feature automatically pauses the workout if the user steps off the belt.
MAXIMUM SPEED	12 MPH, 95TI 15 MPH, 97Ti 10 MPH, 93T U.S. 12 MPH, 93T Int'l	Fastest speed at which the treadmill can operate.
MINIMUM SPEED	.5 MPH	Slowest speed at which the treadmill can operate.
PAUSE TIMEOUT	1 Minute	Maximum time during which a workout can remain in pause mode.
WATTS DISPLAY	OFF (Int'l ON)	If this option is enabled, the MESSAGE CENTER displays the Watts equivalent of the step rate.
METS DISPLAY	OFF	If this option is enabled, the MESSAGE CENTER displays the METs equivalent of the step rate.
PACE DISPLAY	ON	This feature displays the rate of minutes per mile.
CALORIE PER HOUR DISPLAY	ON (Int'l OFF)	If this option is enabled, the MESSAGE CENTER displays the number of calories burned per hour during the workout.
DISTANCE CLIMBED DISPLAY	OFF	The total distance climbed, based on the incline and speed of the treadmill.
ACCELERATION RATE	3	The rate at which the treadmill accelerates to the selected speed, ranging from 1 (slowest) to 5 (fastest).
DECELARATION RATE	3	The rate at which the treadmill decelerates to the selected speed, ranging from 1 (slowest) to 5 (fastest).
MAXIMUM INCLINE	15.0	This option changes the maximum incline grade to a value lower than 15 percent.
START MESSAGE SETUP	N/A	See "Using the "Start Message Startup" in the Owners Manual.
QUICK START DISABLE	OFF (95Ti & 97Ti)	Use this option to disable or enable QUICK START workouts via the numeric keys.
LANGUAGE SELECT	ON/OFF	Factory default is OFF.
FIT TEST PLUS	ON (Int'l OFF) (95Ti & 97Ti)	Enable/Disable Fit Tests: Army PFT; Navy PRT, Marines PFT; Gerkin protocol; PEB
MARATHON MODE	OFF	When marathon mode is enabled, it allows the default 99 minutes to be extended to an unlimited workout time.

Pressing the 'PAUSE' key can LOCK the display. This will prohibit the scrolling of the information.
All changed items will be saved to the memory upon exiting of the manager's configuration.
Press the 'CLEAR' key to exit the Manager's Config and return to the Configuration Menu.

The following message is for factory use only.

```
ACCESS RESTRICTED
```
Calories   Distance   Time   Incline   Speed

This area will allow the user to set the clock configuration in the system. The information can be obtained by using the 'ENTER' key to scroll the day, date, and time.

```
┌──────────────────────────────────────────────────────┐
│                                                        │
│     SET DAY                                            │
│                                                        │
└──────────────────────────────────────────────────────┘
   Calories      Distance        Time        Incline       Speed
```

In this area, the user will be prompted to set the current day for the real time clock. The following is the message that will appear: "USE ARROW KEYS TO CHANGE DAY"

By pressing any of the arrow keys the user will set the current day for the real time clock.
Press the 'CLEAR' key to exit and save data. It will return to the Clock Configuration Menu.

```
┌──────────────────────────────────────────────────────┐
│                                                        │
│     SET DATE                                           │
│                                                        │
└──────────────────────────────────────────────────────┘
   Calories      Distance        Time        Incline       Speed
```
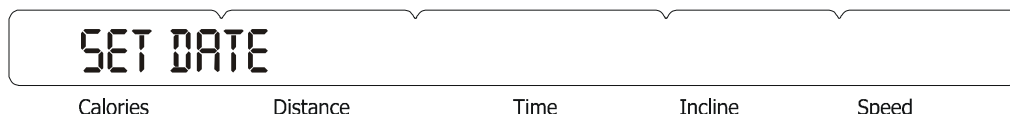
In this area, the user will be asked to set the current date for the real time clock. The following message will appear:

"ARROW KEYS TO CHANGE": "TIME KEYS = MONTH", "INCLINE KEYS = DATE", "SPEED KEYS = YEAR"

Press the 'CLEAR' key to exit and save data. It will return to the Clock Configuration Menu.

```
┌──────────────────────────────────────────────────────┐
│                                                        │
│     SET TIME                                           │
│                                                        │
└──────────────────────────────────────────────────────┘
   Calories      Distance        Time        Incline       Speed
```
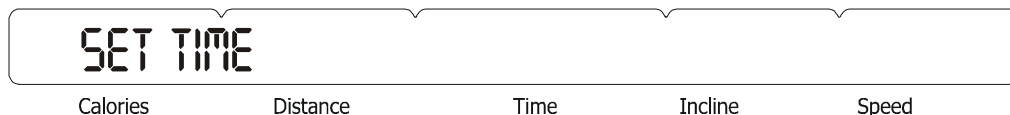
In this area, the user will be prompted to set the display mode of the real time clock. There are two modes that can be chosen by using the 'ARROW KEYS' to scroll and the 'ENTER' key to set local time:

Standard time = 12 hours or Military time = 24 hours

After the selection of the display mode, the user will be prompted to set the current time. The following message will appear:

"ARROW KEYS TO CHANGE": "TIME KEYS = HOURS", "INCLINE KEYS = MINUTES", "SPEED KEYS = SECONDS"

Press the 'CLEAR' key to exit the Set Time menu and return to the Clock Configuration Menu.

NOTES

SECTION 2B
DIAGNOSTIC MODES
FOR
97Te and 95Te LCD UNITS

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills

Diagnostics Section 2B - Continued

LCD Console Welcome Screen

The Welcome Screen initially appears after Power-Up or when the treadmill is not in use. Touching the Screen will change the screen to the WORKOUT SELECTION screen.

DISPLAY CONSOLE 97Te and 95Te LCD

CHOOSE LANGUAGE SCREEN

This screen appears directly after the welcome screen <u>only</u> if USER LANGUAGE SETUP has been enabled in MANAGER MENU.

Choose the language that all messages and screens will show during a single workout.

► Press [image] to return to welcome screen.

► Press [image] to advance to workout menu.

DISPLAY CONSOLE 97Te and 95Te LCD

WORKOUT SELECTION SCREEN – ENTERING DIAGNOSTICS
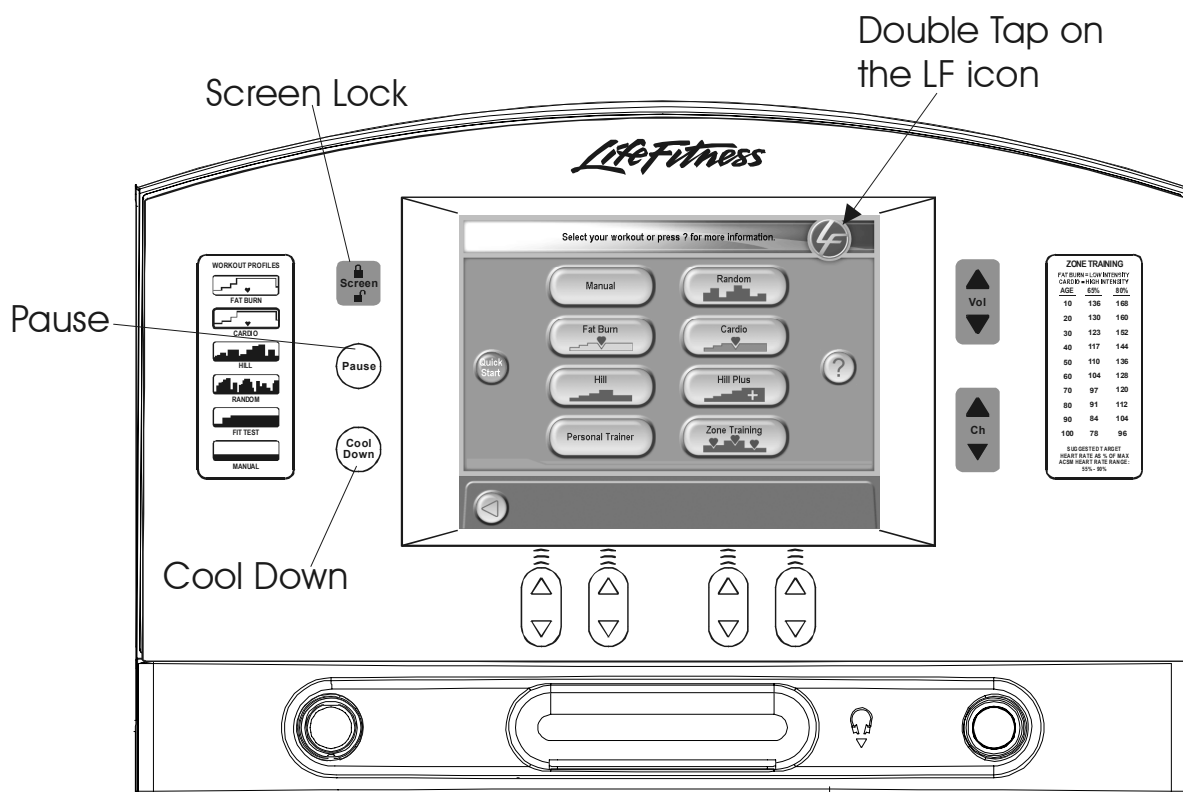
From the Workout Selection Screen you will be able to enter the Systems Option Menu. To enter, go to the Workout Selection Screen then press and hold the COOLDOWN key, and then double-touch the Life Fitness icon.

After entering the System Options the Main Menu will appear. For further information about the programs on this screen, refer to the Operation Manual.

DISPLAY CONSOLE 97Te and 95Te LCD

SYSTEMS OPTIONS MAIN MENU

This screen allows entry into the four main categories of diagnostics mode.

Select any of the four categories to view sub-categories with individual tests and specific information. If product serial number is blank then go to Software Versions for entry.

► Press the EXIT key to exit diagnostic mode.

SYSTEM TEST MENU 1

This menu allows entry into the first of two system test menus.
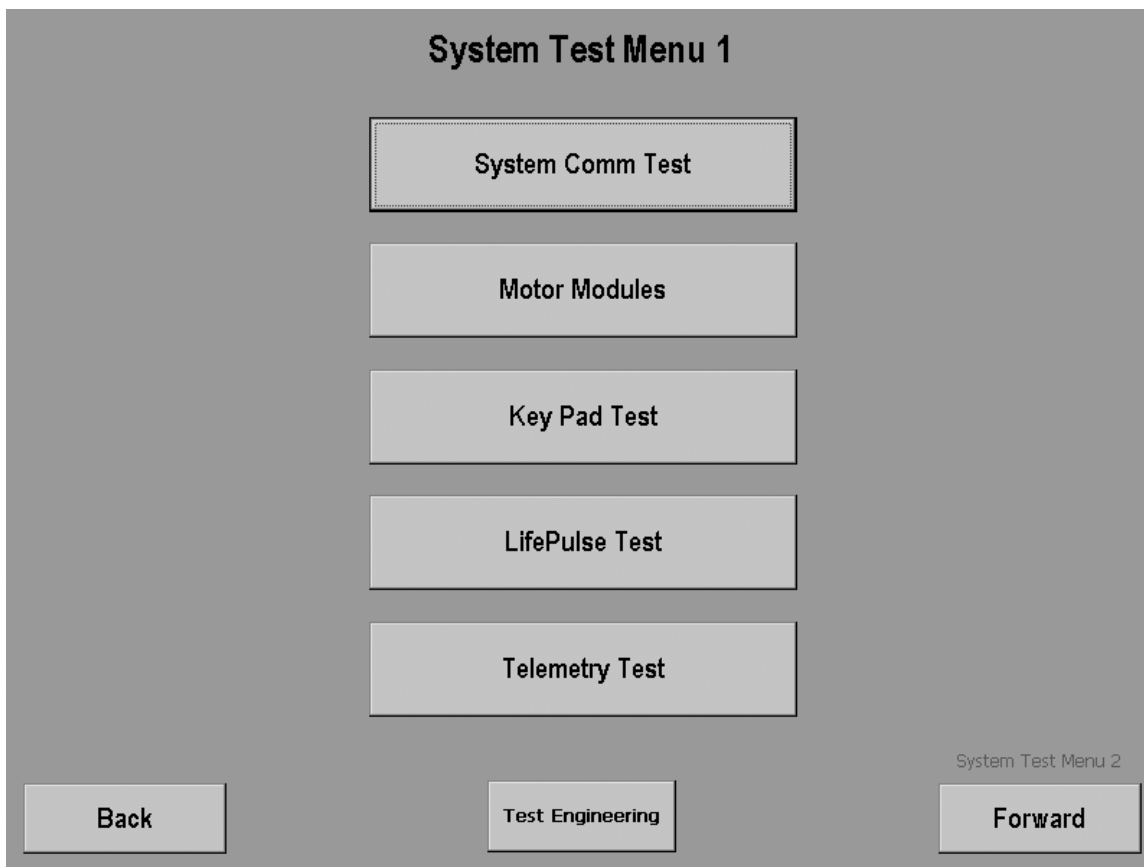
SYSTEM COMM TEST	Checks the ability of all electronic boards to communicate with each other.
MOTOR MODULES	Allows evaluation of the main motor, lift motor, and "home" switch operation.
KEY PAD TEST	Evaluates the condition of all console switches that are not part of the LCD touch screen.
LIFEPULSE® TEST	Evaluates the LifePulse® system.
TELEMETRY TEST	Evaluates the heart rate telemetry system.
TEST ENGINEERING	Test engineering functions only.

► Return to the previous screen by pressing the BACK key.
► Press the FORWARD key to move to the SYSTEM TEST MENU 2 screen.

DISPLAY CONSOLE 97Te and 95Te LCD

SYSTEM TEST MENU 1 – SYSTEM COMM TEST

This test checks the ability of all electronic boards to communicate with each other.

The test starts automatically. An error message will be displayed in the INFORMATION screen if a module does not respond in an allotted time.

The message SYSTEM COMM OK will be displayed in the INFORMATION screen if no fault is detected.


► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 1 – MOTOR MODULES

This test allows evaluation of the main motor, lift motor, and "home" switch operation.

Error message area	Displays any current errors when a module (LIFT or main MOTOR) is selected.
MODULE	Selection of LIFT motor or main MOTOR.
MODE	Selects automatic or manual modes for lift and main motor activation.
SWITCHES	Displays a lit condition when "home" switch has been activated.
ACTUAL (COUNT and %)	Displays software equivalent count of lift motor position and incline angle.
INCLINE	The incline can be adjusted by pressing the incline ARROWs only on the overlay.
CURRENT TRIP	Displays a lit condition when motor current exceeds a predetermined trip value.
INFO	Displays real-time information regarding wattage consumption, % power available, motor controller heat sink temperature, and voltage available to main motor.
ACTUAL (RPM & MPH)	Displays main motor rpm and belt speed in mph.
SPEED	The speed can be adjusted by pressing the speed ARROWs only on the overlay.

Lift Motor "home" Switch Evaluation Procedure - Operate lift motor and ensure mechanism moves smoothly between 0 and 15% incline. Make certain HOME indicator is lit when incline value is zero.

Belt and Deck Evaluation Procedure - Walk on treadmill for one minute at 3.5 mph. Increase speed to 7 mph and note power consumption (Watts) reading after one minute. Power consumption in excess of 1100 watts indicates excessive belt to deck wear. Replace belt and deck (deck may be flipped once) as needed.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 1 – KEY PAD TEST

This test evaluates the condition of all console switches that are <u>not</u> part of the LCD touch screen.
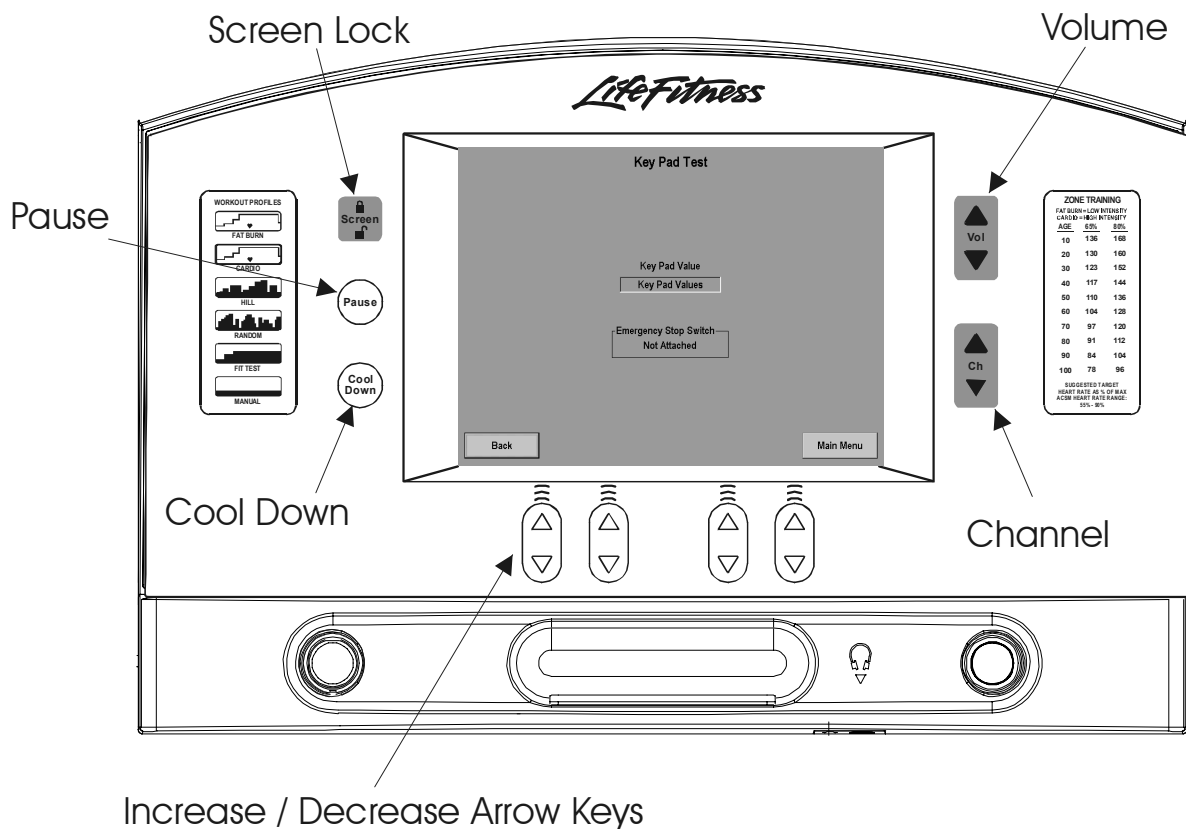
KEY PAD VALUES	Displays the corresponding text for any key outside the touch screen.
EMERGENCY STOP SWITCH	Displays the status of the positioning of the emergency stop switch magnet.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 1 – LIFEPULSE TEST

This test evaluates the LifePulse® system.

SENSOR STATUS	A LEFT ON and RIGHT ON message should be displayed when hands are placed on the corresponding LifePulse® sensors.
HEART RATE VALUE	Displays current heart rate value calculated by LifePulse®.
GAIN (0-99)	The value displayed is proportional to the amount of signal that is being provided by the LifePulse® sensors. The higher the gain values the lower the signal that is being evaluated by the LifePulse® system.
CONFIDENCE (0-9)	A value that indicates a confidence level for heart rate values displayed. Higher confidence readings indicate that LifePulse® is providing accurate readings while low confidence readings most often indicate poor contact with hand sensors.
ACQUISITION TIME	Count starts when both left and right hands are in proper contact with LifePulse® sensors. This timer running is an indication that the LifePulse® system is now performing the necessary initial calculations to provide a continuous accurate heart rate value. The timer will stop when the system has calculated and displayed a heart rate value.
REAL TIME REMAINING %	For engineering purposes only.
COMM THREAD STATUS	For engineering purposes only.

Both the speed and incline systems can be adjusted during this test by pressing the corresponding ARROW keys.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 1 – TELEMETRY TEST

This test evaluates the heart rate telemetry system.
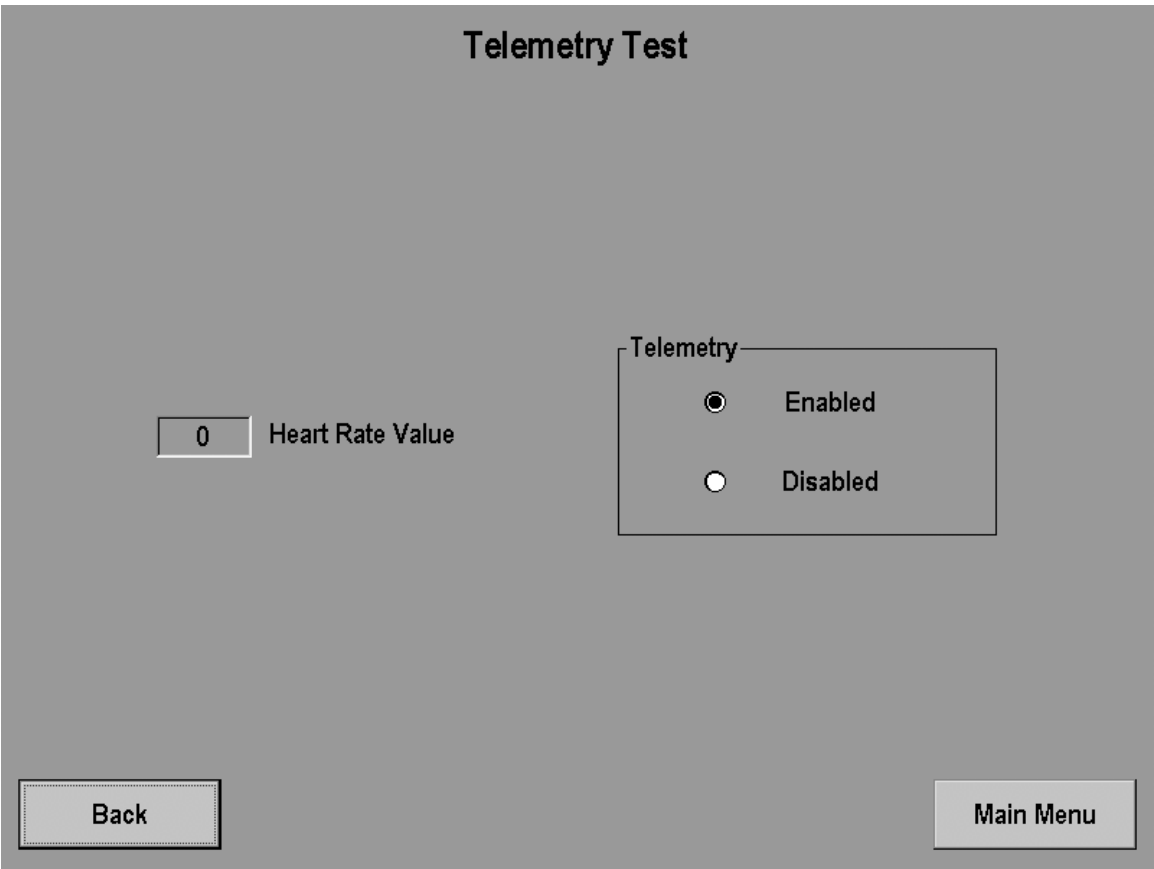
HEART RATE VALUE	Displays heart rate value if telemetry is enabled and the receiver is getting a signal from the Polar® transmitter.
TELEMETRY	Allows the treadmill to detect a signal from the chest or pulse simulator, thereby enabling or disabling telemetry by touching the desired selection.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 2

This menu allows evaluation of console board "flash" memory, CSAFE interface port, and Smart-Stop feature.
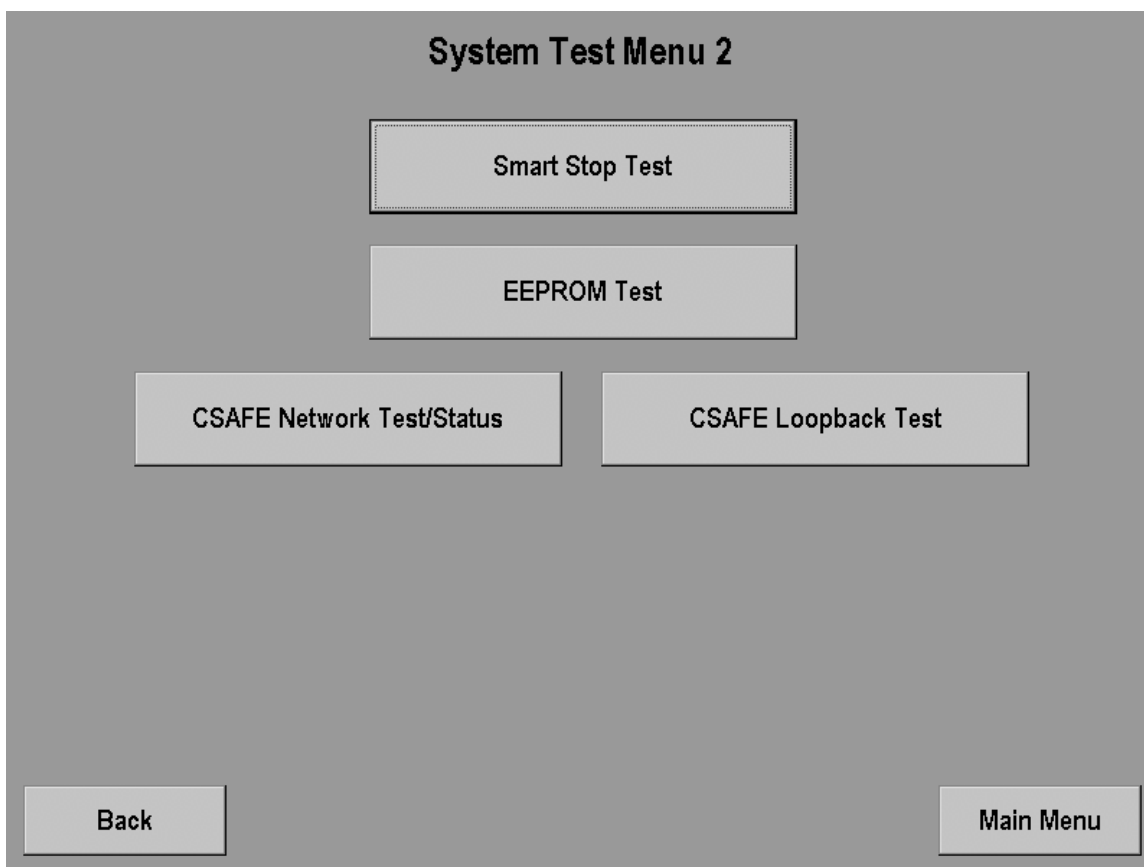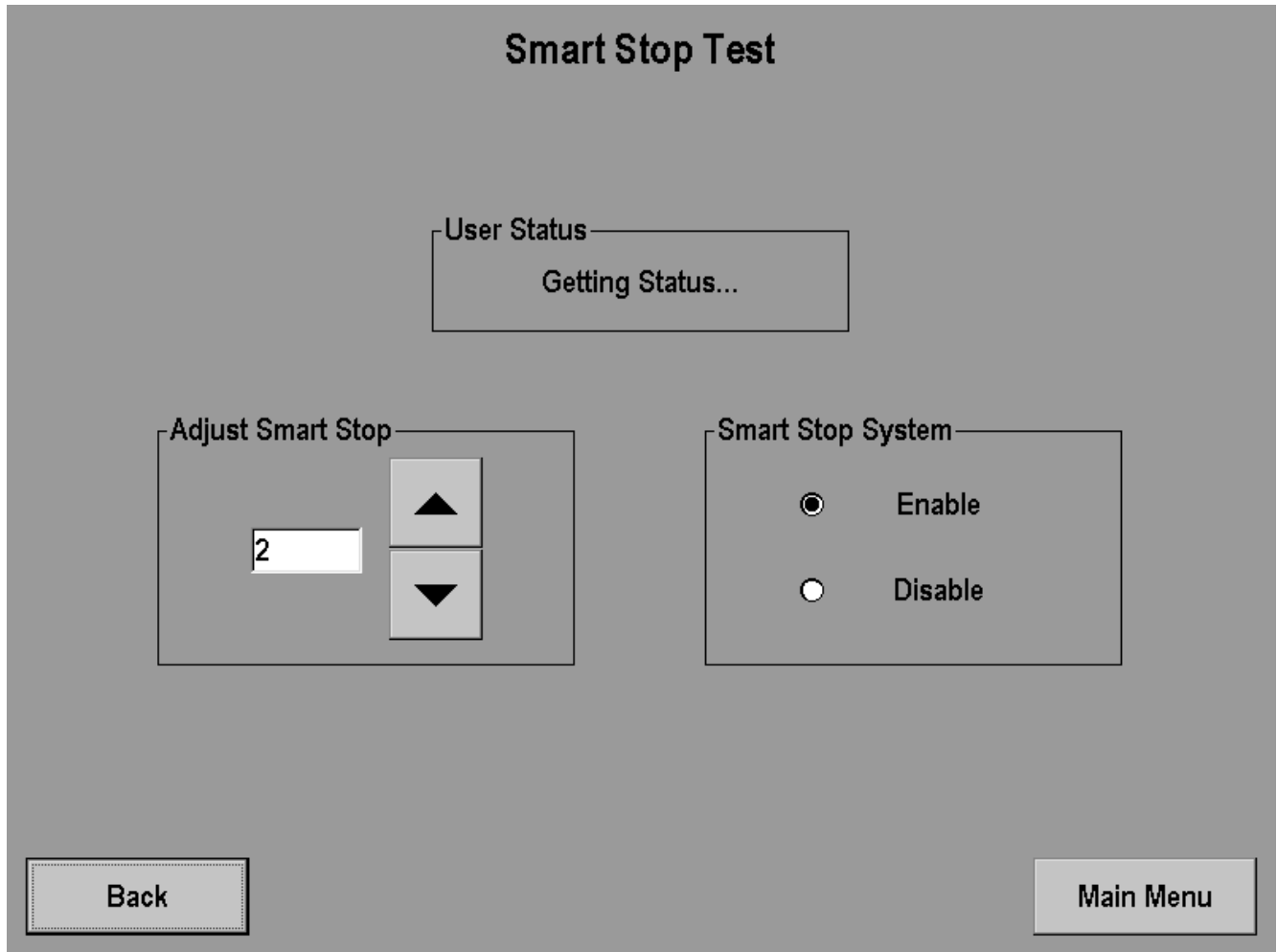
SMART STOP TEST	Allows evaluation of Smart-Stop operation and sensitivity adjustment.
EEPROM TEST	This test will attempt to write electronic data to memory locations within the console EEPROMs. This information will be read back to verify its integrity.
CSAFE NETWORK TEST/STATUS	Displays information regarding packet transfer on network and is for engineering purposes only.
CSAFE LOOPBACK TEST	Allows evaluation of the CSAFE network interface hardware.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 2 - SMART STOP TEST

During this test, if the Smart Stop System detects a user it will be displayed in the **User Status Window** detected. If the Smart Stop PCB is not plugged in. A message will be displayed in the User Status window as Smart Stop Unplugged.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST MENU 2 – EEPROM TEST

This test allows evaluation of the single-board computer and interface board "flash" memory.
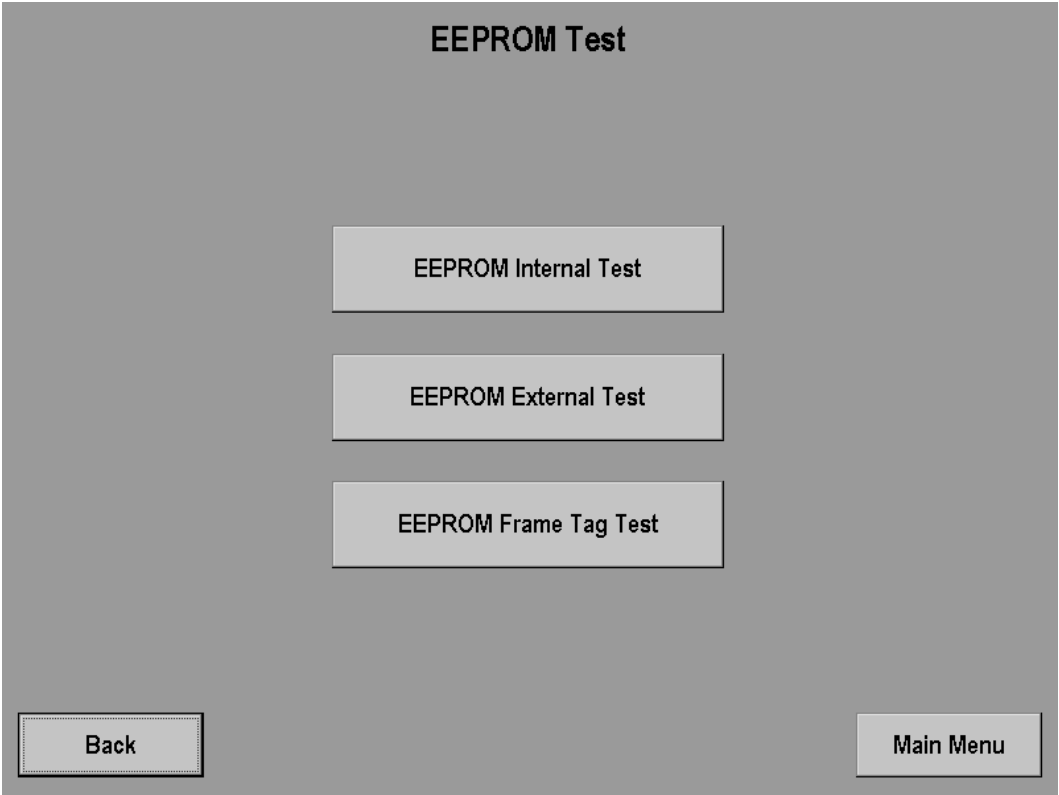
INTERNAL EEPROM TEST	Checks EEPROM on single-board computer.
EXTERNAL EEPROM TEST	Checks EEPROM on interface-board.
FRAME TAG TEST	Checks EEPROM on frame tag-board

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

SYSTEM TEST – SYSTEM TEST MENU 2 – CSAFE Network Test/Status

This screen allows evaluation of the CSAFE network interface hardware and is for engineering purposes only.

```
                    CSAFE Network Test/Status

  ┌─Information──────────────────┐   ┌─Configuration─────────────────┐
  │           Rx Packets:  0     │   │            ID Length:  5       │
  │           Tx Packets:  1     │   │ Timeout Period(Seconds): 15    │
  │ Timeout Timer(Seconds):      │   │      Up-List(# Items):  0      │
  │          CSAFE State:  READY │   └───────────────────────────────┘
  │       Previous Rejects: 0    │   ┌─CSAFE Version─────────────────┐
  │         Previous Bads:  0    │   │         Manufacturer:  9       │
  │ Net Down Timer(Seconds):     │   │                 CID:  2        │
  │                              │   │               Model:  6        │
  │        Reset Connection      │   │             Version:  9        │
  │                              │   │             Release:  10       │
  └──────────────────────────────┘   └───────────────────────────────┘

       Back                                          Main Menu
```

►   Return to the previous screen by pressing the BACK key.
►   Press the MAIN MENU key to return to the MAIN MENU screen.

This test allows evaluation of the CSAFE network interface hardware.

Follow the directions on the screen to perform the testing.

START CSAFE LOOPBACK TEST	Starts testing routine once loop-back cable is in place.
CSAFE LOOPBACK STATUS	Displays results of completed test.

►   Return to the previous screen by pressing the BACK key.
►   Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION – INFORMATION MENU

This menu provides historical data on critical system items and viewing of the system clock.
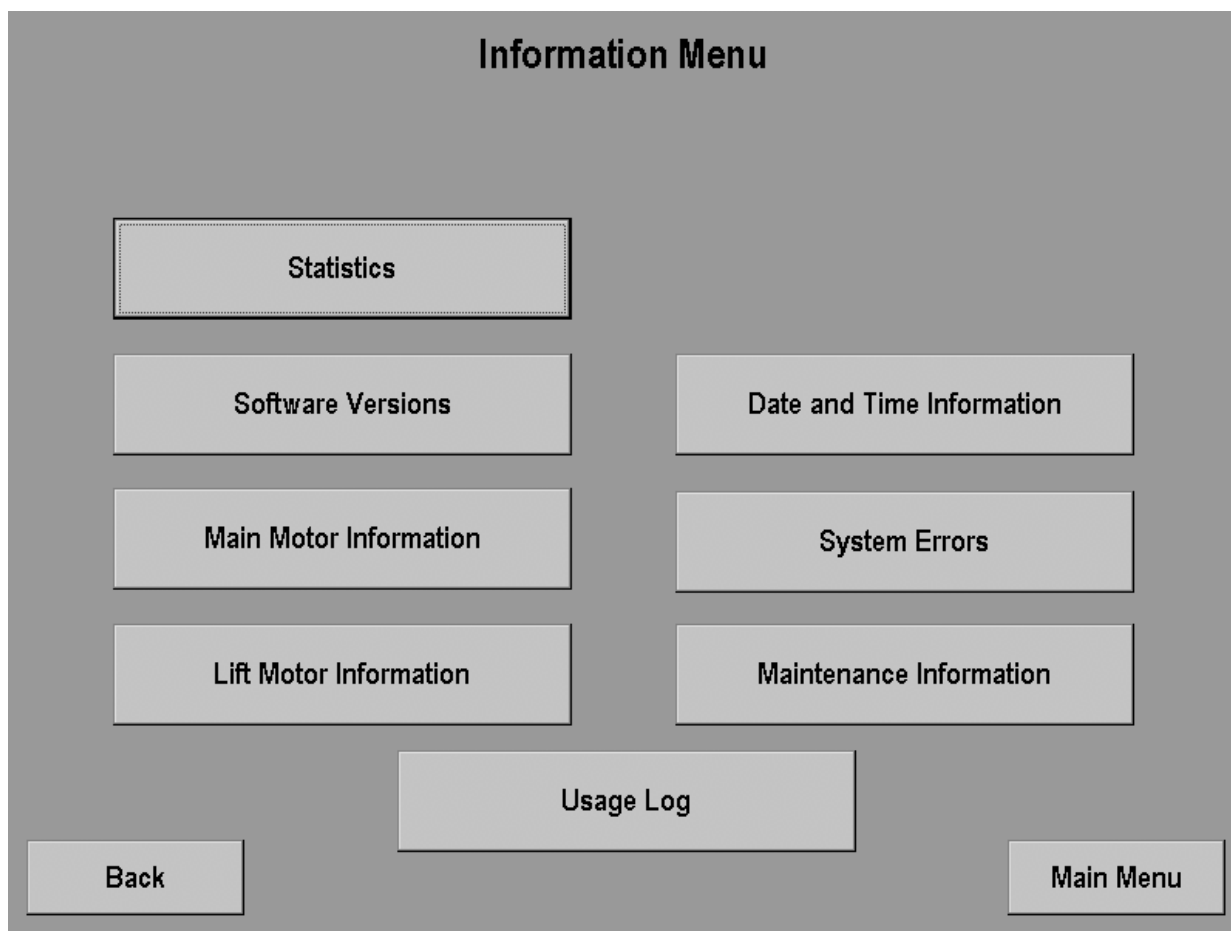
Press the appropriate button to see information on that topic.

STATISTICS	Information concerning machine usage.
SOFTWARE VERSIONS	Provides software version information for various printed circuit boards used in the system.
MAIN MOTOR INFORMATION	Historical data regarding the main motor and motor controller.
LIFT MOTOR INFORMATION	Historic information on lift motor usage.
DATE AND TIME INFORMATION	System date and time.
SYSTEM ERRORS	Any historical system errors.
MAINTENANCE INFORMATION	Last 12 logged system repairs performed.
USAGE LOG	Historical information on machine usage by logging user weight and striding belt speed.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION – INFORMATION STATISTICS

This screen allows viewing of information concerning machine usage.

Information Statistics

POWER-UP COUNT: 1	WORKOUT COUNT: 0	
TOTAL HOURS: 0:00:00	CARDIO: 0	ARMY: 0
TOTAL MILES: 0.00	HR HILL: 0	NAVY: 0
BELT HOURS: 0:00:00	HR INTERVAL: 0	MARINE: 0
BELT MILES: 0.00	EXTREME HR: 0	AIR FORCE: 0
LIFT HOURS: 0:00:00	SPEED INTERVAL: 0	NETWORKED: 0
CHANGE WORKOUTS: 0	SPORT TRAINING 5K: 0	CUSTOM: 0
QUICK: 0	SPORT TRAINING 10K: 0	TIME GOALS: 0
MANUAL: 0	SPORT TRAINING: 0	DISTANCE GOALS: 0
HILL: 0	LF FIT TEST: 0	CALORIES GOALS: 0
RANDOM: 0	GERKIN: 0	TIME-IN-ZONE GOALS: 0
FAT BURN: 0	PEB: 0	MARATHON MODE: 0
		TV: 0

Back **Main Menu**

NOTE - Information shown for reference only.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION - SOFTWARE VERSIONS

This screen provides software version information for various electronic boards used in the system.

NOTE - Information shown for reference only.

The corresponding Life Fitness part number is displayed next to the software version if applicable. Double-tape on the Product Serial # field to enter serial number.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION - SOFTWARE VERSIONS - CONTINUED

This screen is only used for manual inputting of the product serial number.

This procedure is only necessary when the product serial number shown on the previous page is either missing or incorrect. Double-tape on the Product Serial # field to enter serial number.

► Press OK to accept changes to settings.
► Abort any changes made and return to the previous screen by pressing the CANCEL key.

INFORMATION - MAIN MOTOR INFORMATION

This screen allows viewing historical data regarding the main motor and motor controller.

Main Motor Information

Motor Minutes:	0
Max Relative Temperature:	0
Max Relative Voltage:	0
Max Relative Amps:	0
Max Relative Fast-Acting Amps:	0
Power Resets:	0
External Resets:	0
COP Resets:	0
Low Voltage Resets:	0
Temperature Trips:	0
Voltage Trips:	0

Hardware Trips:	0
Current Trips:	0
Fast-Acting Current Trips:	0
Start-Up Errors:	0
Speed Sensor Noise:	0
Speed Sensor Lost:	0
Speed Sensor Invalid:	0
SCI Comm Errors:	0

Back   Main Menu

NOTE – It may take several seconds before data is displayed.

MOTOR MINUTES	Total number of minutes main motor has been running.
MAX RELATIVE TEMPERATURE	Maximum temperature.
MAX RELATIVE VOLTAGE	Maximum bus voltage.
MAX RELATIVE AMPS	Maximum bus current.
MAX RELATIVE FAST-ACTING AMPS	Maximum short-term/fast-acting current.
POWER RESETS	Motor controller microprocessor resets due to power-ups.
EXTERNAL RESETS	Motor controller microprocessor resets due to external resets.
COP RESETS	Motor controller microprocessor resets due to COP timeouts.
LOW VOLTAGE RESETS	Motor controller microprocessor resets due to low voltage.
TEMPERATURE TRIPS	Motor controller shut downs due to excessive temperature detection.
VOLTAGE TRIPS	Motor controller shut downs due to excessive bus voltage.

INFORMATION - MAIN MOTOR INFORMATION - CONTINUED

HARDWARE TRIPS	Motor controller shut downs due to excessive bus currents detected by hardware.
CURRENT TRIPS	Motor controller shut downs due to excessive bus currents detected by software.
FAST-ACTING CURRENT TRIPS	Motor controller shut downs due to short-term/fast-acting excessive bus currents detected by software.
START-UP ERRORS	Speed sensor counts not detected at beginning of workouts.
SPEED SENSOR NOISE	Electrical Noise detected in speed sensor system.
SPEED SENSOR LOST	Speed sensor counts not detected during workouts.
SPEED SENSOR INVALID	Number of unrealistic speed sensor readings.
SCI ERRORS	Internal communication bus errors.

NOTE – Console replacement will reset all main motor information.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION - LIFT MOTOR INSTALLATION

This screen allows viewing of historic information on lift motor usage.

Lift Motor Information

Incline Range:	0.0% to 15.0%	5.1% to 6.0% Time:	0:00:00
Lift Time:	0:00:00	6.1% to 7.0% Time:	0:00:00
-3.0% to -2.1% Time:	0:00:00	7.1% to 8.0% Time:	0:00:00
-2.0% to -1.1% Time:	0:00:00	8.1% to 9.0% Time:	0:00:00
-1.0% to -0.1% Time:	0:00:00	9.1% to 10.0% Time:	0:00:00
0.0%% Time:	0:00:00	10.1% to 11.0% Time:	0:00:00
0.1% to 1.0% Time:	0:00:00	11.1% to 12.0% Time:	0:00:00
1.1% to 2.0% Time:	0:00:00	12.1% to 13.0% Time:	0:00:00
2.1% to 3.0% Time:	0:00:00	13.1% to 14.0% Time:	0:00:00
3.1% to 4.0% Time:	0:00:00	14.1% to 15.0% Time:	0:00:00
4.1% to 5.0% Time:	0:00:00		

Back   Main Menu

NOTE - Information shown for reference only.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION – VIEW DATE & TIME SETTINGS

This menu indicates the current settings of the real-time system clock.

Information Menu

Date and Time Information

◄ **January 2004** ►

S	M	T	W	T	F	S
28	29	30	31	1	2	3
4	5	6	**7**	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

Today: 1/7/2004

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Cancel

Usage Log

Back

Main Menu

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

DISPLAY CONSOLE 97Te and 95Te LCD

INFORMATION - SYSTEM ERRORS

This screen allows viewing of any historical system errors.

Any errors will be displayed from most recent to oldest.
The display format will include the error number, error type, occurrences, and time stamp.

ERROR #	Error number designation. Multiple errors of the same type will be displayed on one line with multiple occurrences.
TYPE	Error type designation.
OCCURANCES	Displays how many times the error has occurred in successive power-ups.
TIME STAMP	Displays information on what power-up cycle the error occurred. It also contains information regarding the exact moment in that cycle the error occurred.
TOTAL SYTEM ERRORS	Total count of occurrences of all errors.
DETAILS	Specific technical details such as "memory dumps" or internal software messages that could aid in error resolution.
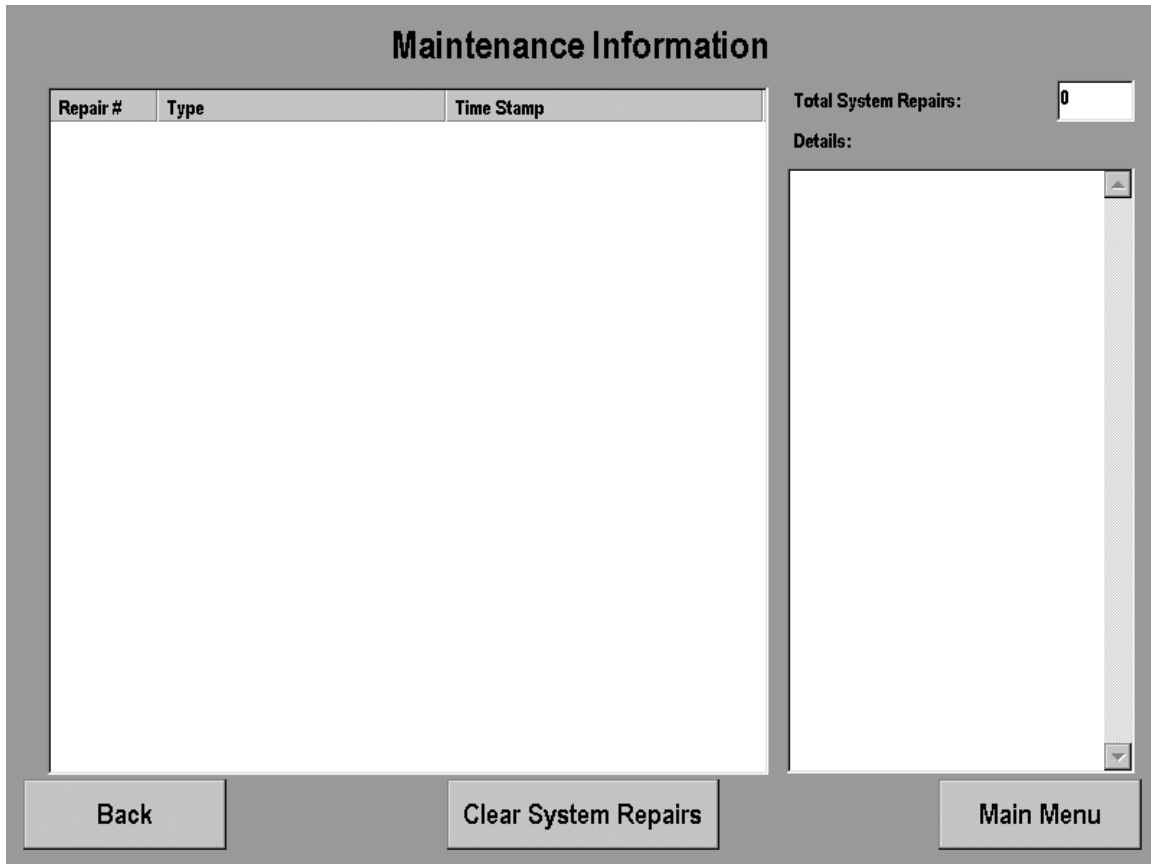
Pressing CLEAR SYSTEM ERRORS will delete all errors from the log.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
DISPLAY CONSOLE 97Te and 95Te LCD

INFORMATION - MAINTENANCE INFORMATION

This screen will allow viewing the last 12 logged repairs.

Repair information will be displayed from most recent to oldest.

Repair operations that are displayed here were logged using the MAINTENANCE screen.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

INFORMATION - USAGE LOG REPORT

This screen allows viewing of historical information on machine usage by logging user weight and striding belt speed.

Usage Log Report

MPH	Weight 0 - 99	Weight 100 - 115	Weight 116 - 131	Weight 132 - 147	Weight 148 - 163	Weight 164
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Back   Main Menu

NOTE - Information shown for reference only.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

DISPLAY CONSOLE 97Te and 95Te LCD

CONFIGURATION - CONFIGURATION MENU

This menu allows access to six separate configuration categories.
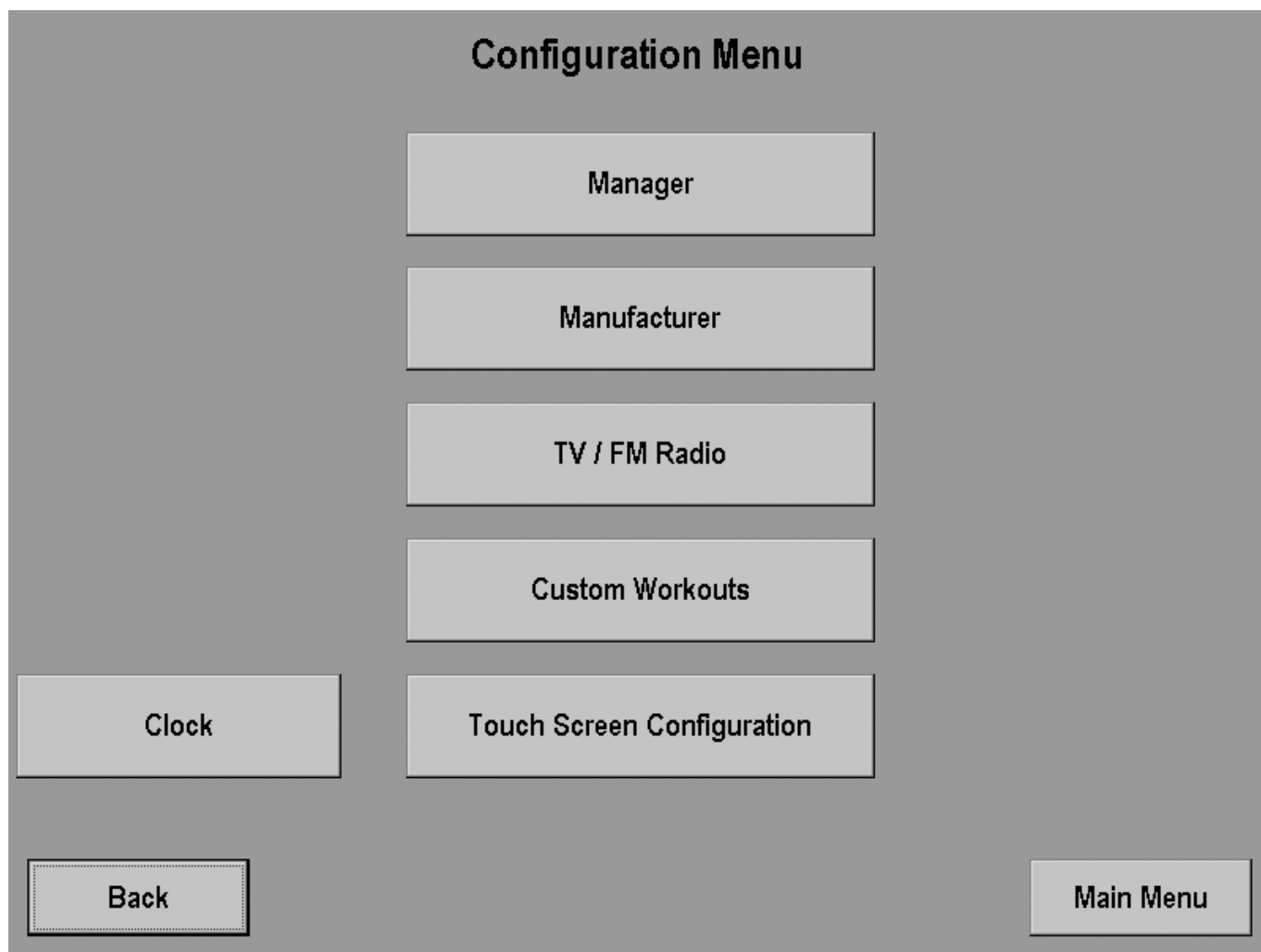
MANAGER	Allows adjustment of various system settings for health club management personnel.
MANUFACTURER	Allows adjustment of various system settings and is for factory authorized service personnel only.
TV / FM RADIO	Allows adjustment of entertainment system parameters.
CUSTOM WORKOUTS	Allows up to six custom workouts to be developed by the user.
CLOCK	Allows setting of system date and time.
TOUCH SCREEN CONFIGURATION	Allows calibration of the touch screen.

►   Return to the previous screen by pressing the BACK key.
►   Press the MAIN MENU key to return to the MAIN MENU screen.

CONFIGURATION - MANAGER

Manager's Configuration 1(Basic), Manager's Configuration 1(Advanced), and Manager's Configuration 2

The manager's configuration 1(basic) screen is intended to display basic settings such as English or metric units, maximum and minimum speed, basic workout duration, and stand by configuration.

The manager's configuration 1(advanced) screen allows more advanced settings for workout duration in addition to basic settings such as English or metric units, maximum and minimum speed, basic workout duration, and stand by configuration.

Manager's Configuration 2 allows for controlling certain parameters such as distance climbed, fit test plus, marathon mode, maximum incline angle, telemetry, and others (refer to screen)

To change any settings, simply select appropriate buttons and use the arrow keys to modify variable default values.

Select DEFAULTS at any time to return all values to there original factory settings.

► To return to the previous page press the Back key.
► Press the Main Menu key to return back to the System Options – Main Menu Screen.

CONFIGURATION – MANAGER - CUSTOM MESSAGE SETUP

This screen allows setting a custom message that scrolls across the welcome screen.
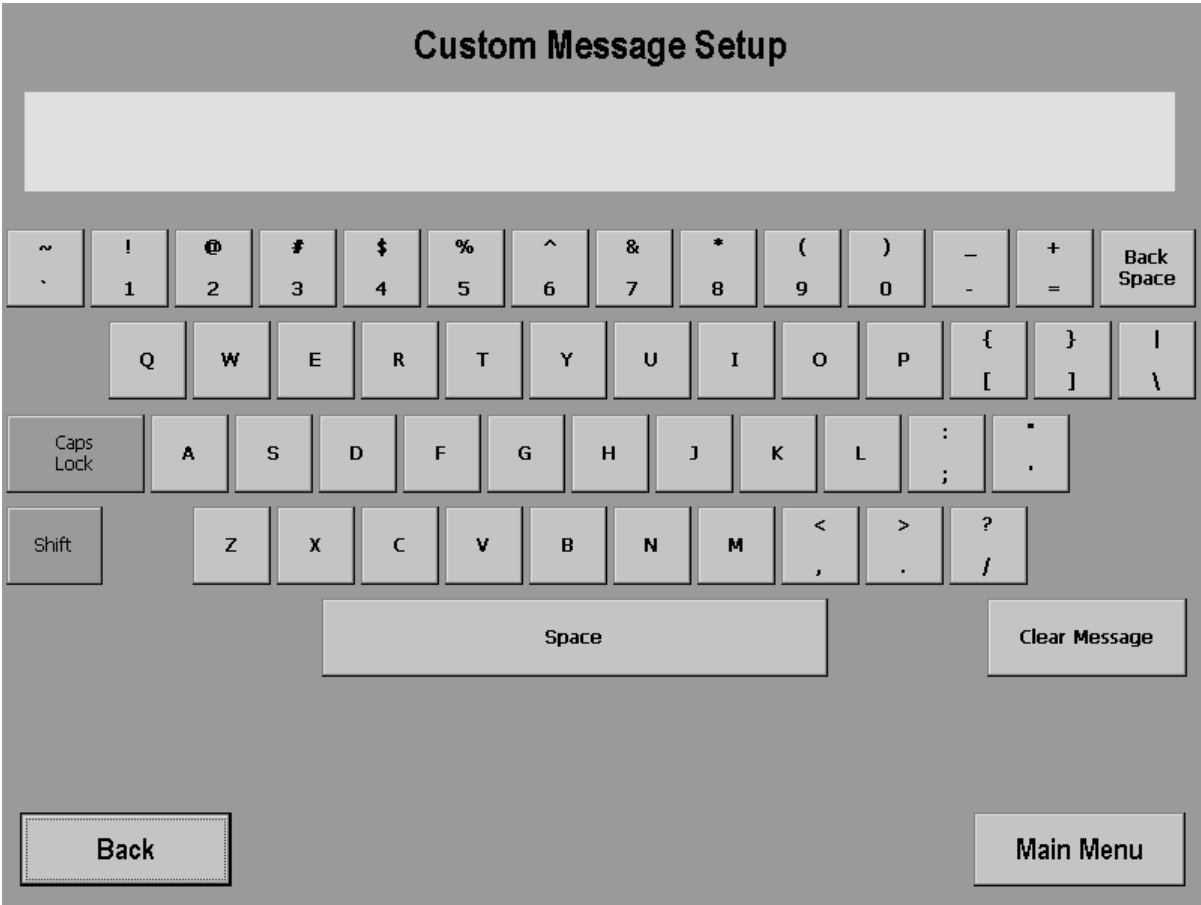
	Enter a custom message just as you would on a computer keyboard. Use the
Creating/Changing Message	CLEAR MESSAGE key erase the message and start again if desired. During message input, the message will scroll across the area above the keys. When finished press MAIN MENU to save and activate message.
Erasing an Existing Message	Press the CLEAR MESSAGE key followed by MAIN MENU.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

CONFIGURATION – MANAGER – User Language Setup

This screen allows setting a specific language to be used for all screens during a single workout.

ENABLED / DISABLED	When enabled, allows a user to choose from a check-marked language of preference.

► Abort any changes made and return to the previous screen by pressing the CANCEL key.
► Press OK to accept any language change and return to the previous screen.

DISPLAY CONSOLE 97Te and 95Te LCD

CONFIGURATION - MANUFACTURER

This screen allows adjustment of various system settings and is for factory authorized service personnel only.

Enter the proper pass code and press OK to allow modifications to system parameters.

► Return to the previous screen by pressing the CANCEL key.

CONFIGURATION – TV/FM RADIO CONFIGURATION MENU

This menu allows displaying specific menus for setting parameters for TV, secure video, and FM radio.
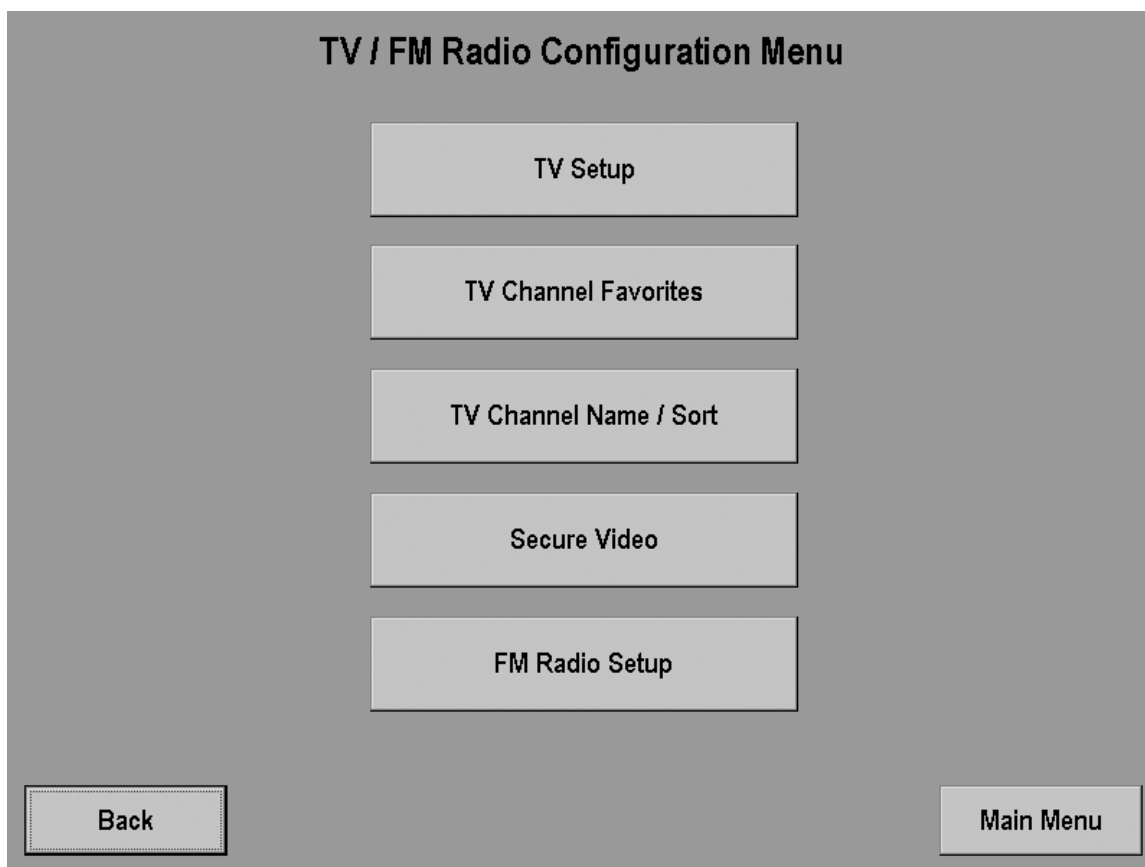
TV SETUP	Allows adjustment of video format and parameters for TV and secure video.
TV CHANNEL FAVORITES	Allows setting up TV stations for quick access.
TV CHANNEL NAME / SORT	Allows creating/changing a user assigned TV station name and changing the order that channel will appear in a listing.
SECURE VIDEO	A optional "closed-circuit" TV system where viewing can be password protected.
FM RADIO SETUP	Allows adjustment of FM radio settings and frequency selections.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

CONFIGURATION - TV CONTROLS

This screen allows adjustment of entertainment system parameters.

ANTENNA SETUP	CABLE – Select for cable type broadcasts.
	AIR – Select for antenna type broadcasts.
CHANNEL SETUP	AUTO – An automatic broadcast channel scan will begin when START is pressed. An indicator shows the scanning progress. All captured channels will be available for selection.
	MANUAL – Using CH UP and CH DOWN, broadcast channels can be ADDed or DELETEd manually.
PICTURE SETUP	BRIGHTNESS – White to black ratio. (Default = 180)
	CONTRAST – The difference in brightness between the light and dark areas of the picture.(Default = 71)
	SATURATION – Color intensity. (Default = 64)
	HUE – Sometimes referred to as tint. This controls the red to green level. (Default = 0) DEFAULT – Adjusts all controls for picture setup to factory default settings.

CONFIGURATION - TV CONTROLS - CONTINUED

MAX VOLUME	Adjustment of the maximum attainable volume possible for audio headphones.
CH UP	Manually advances to the next higher broadcast station that is available for selection.
CH DOWN	Manually advances to the next lower broadcast station that is available for selection.

Countries	TV Format	Countries	TV Format
Aruba	NTSC M/N	India	PAL B/G
Bahamas	NTSC M/N	Indonesia	PAL B/G
Barbados	NTSC M/N	Israel	PAL B/G
Bonaire	NTSC M/N	Italy	PAL B/G
Caribbean	NTSC M/N	Jordan	PAL B/G
Cayman Islands	NTSC M/N	Kenya	PAL B/G
Chile	NTSC M/N	Kuwait	PAL B/G
Colombia	NTSC M/N	Malaysia	PAL B/G
Costa Rica	NTSC M/N	Nepal	PAL B/G
Curacao	NTSC M/N	Netherlands	PAL B/G
Dominican Republic	NTSC M/N	New Zealand	PAL B/G
Ecuador	NTSC M/N	Norway	PAL B/G
El Salvador	NTSC M/N	Pakistan	PAL B/G
Guatemala Honduras	NTSC M/N	Portugal	PAL B/G
Japan	NTSC M/N	Qatar	PAL B/G
Korea	NTSC M/N	Singapore	PAL B/G
Mexico	NTSC M/N	Slovakia	PAL B/G
Nicaragua	NTSC M/N	Spain	PAL B/G
Panama	NTSC M/N	Sri Lanka	PAL B/G
Peru	NTSC M/N	Sweden	PAL B/G
Philippines	NTSC M/N	Switzerland	PAL B/G
Puerto Rico	NTSC M/N	Syria	PAL B/G
St. Martin	NTSC M/N	Thailand	PAL B/G
Taiwan	NTSC M/N	Turkey	PAL B/G
United States of America	NTSC M/N	United Arab Emirates	PAL B/G
Venezuela	NTSC M/N	China	PAL D/K
Australia	PAL B/G	Hungary	PAL D/K
Austria	PAL B/G	Poland	PAL D/K
Bahrain	PAL B/G	Romania	PAL D/K
Bangladesh	PAL B/G	Hong Kong	PAL I
Belgium	PAL B/G	Ireland	PAL I
Bosnia	PAL B/G	South Africa	PAL I
Cyprus	PAL B/G	United Kingdom	PAL I
Czech Republic	PAL B/G	Brazil	PAL M
Denmark	PAL B/G	Argentina	PAL M/N
Ethiopia	PAL B/G	Egypt	SECAM B/G
Finland	PAL B/G	Lebanon	SECAM B/G
Germany	PAL B/G	Saudi Arabia	SECAM B/G
Ghana	PAL B/G	Moldova	SECAM D/K
Greece	PAL B/G	Russia	SECAM D/K
Iceland	PAL B/G	France	SECAM L

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

CONFIGURATION - MAX VOLUME SETUP

This screen allows adjustment of the maximum attainable volume possible for audio headphones.
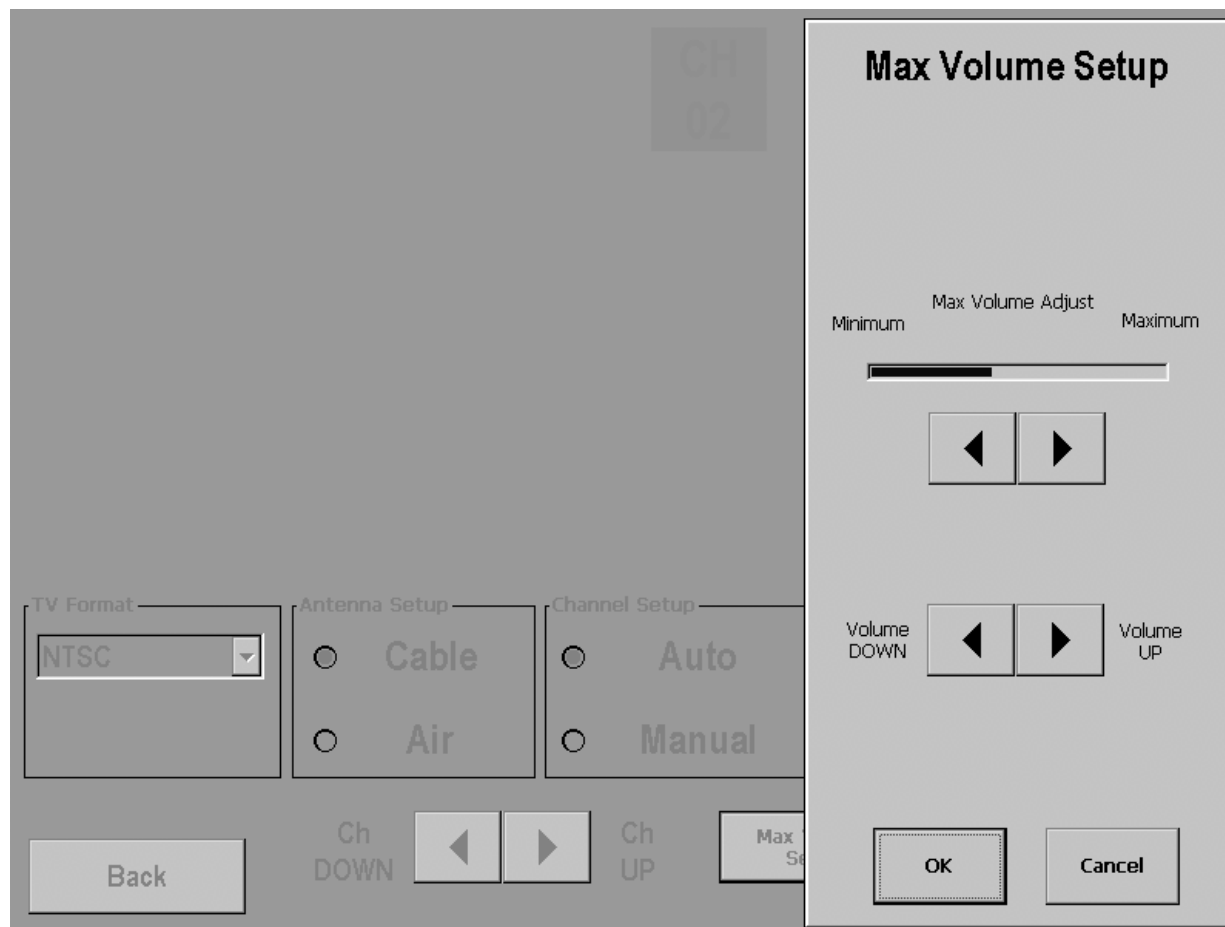
NOTE - Headphones must be used for this adjustment.

Use the ARROW keys to adjust the level of the maximum attainable volume and actual volume settings for the headphones.

NOTE: At the end of every workout the actual volume setting reverts to a default level. This has no effect on the maximum volume setting.

► Press OK to accept changes to settings.
► Abort any changes made and return to the previous screen by pressing the CANCEL key.

CONFIGURATION – FAVORITE CHANNELS

This screen allows a possible six character custom name and direct access to be assigned to any of nine favorite TV stations.

ENABLED/DISABLED	Status of favorite channel feature.
ENTER NAME	Allows entry of a custom name for a single channel.
CLEAR SELECTED	Allows deletion of the custom name for the selected channel.
CLEAR ALL	Clears all custom names for TV stations.
NAME	Displays custom name assigned to a single TV channel.
CH #	Displays channel number associated with the custom name.

TV Channel Favorites
Opens the Favorite Channel configuration screen. Up to 9 favorite channels can be stored for quick access during a workout. This feature may be enabled or disabled.

NOTE: Setting channels using the auto channel setup procedure, as instructed in TV SETUP, is recommended before attempting to setup favorite channels.

To Set Up a Favorite Channel: Select (touch) the ENABLE radial button, then select the radial button next to the input slot desired, select Enter Name, input the channel name using the keyboard display, select OK to accept the channel name, and select the desired channel using the Up or Down ARROW Keys. Continue as desired to set up to 9 favorite channels. Select OK to set the channels to memory.

► Press OK to accept changes to settings.
► Abort any changes made and return to the previous screen by pressing the CANCEL key.

CONFIGURATION – CHANNEL NAME / SORT SETUP

This screen allows entry of a descriptive name to be associated with a particular TV channel. It also allows ordering of those names for quick access.

ENABLED / DISABLED	Allows user to view channels in list for quick access.
NAME	Allows a possible six character name to be assigned to a particular TV channel.
CHANNEL SWAP	Allows changing order of channels for quick access.
ENTER NAME	Allows entry of an assigned name to the selected channel.
CLEAR NAME	Allows changing of selected channel name.
PAGE UP / PAGE DOWN	Allows sequential viewing of the next nine channels if available.
VALID	Allows modification of name and order if box is checked.

CONFIGURATION – CHANNEL NAME / SORT SETUP - Continued

TV Channel Name/Sort
Opens the Channel Name/Sort configuration screen. Allows the facility manager to customize the TV channel list order. This feature may be enabled or disabled.

NOTE: Setting channels using the auto channel setup procedure, as instructed in TV SETUP, is recommended before attempting to setup favorite channels.

To Set Up a Channel List item: Select (touch) the ENABLE radial button, select the radial button next to the input slot desired, select Enter Name, input the channel name using the keyboard display, select OK to accept the channel name, select the desired channel using the Up or Down ARROW Keys. Continue as desired to set channel list. Select OK to set the channels to memory.

Validation: The validation checkbox enables or disables viewing of the channel in the list. Select the checkbox to enable the channel. If Channel Name/Sort and Channel Favorites are both enabled, channel not marked as valid (enabled) in Channel Name/Sort will be removed form Channel Favorites.

Channel Swap: To swap channels within the channel listing, select Channel Swap. Select the radio button next to the desired channel. The Channel Swap window will appear showing the channel selected for swapping. Use the Up or Down arrow keys to select the second channel to swap with the previous channel. Select the swap button to preview the channel swap information. Press OK to confirm the channel swap or CANCEL to exit without swapping channels.

► Press OK to accept changes to settings.
► Abort any changes made and return to the previous screen by pressing the CANCEL key.

CONFIGURATION – SECURE VIDEO

This screen allows adjustment of settings for the secure video (closed-circuit) TV feature.

ENABLED / DISABLED	Enables or disables secure video "closed circuit" TV feature.
CHANNEL	Channel number of closed circuit TV system.
BUTTON NAME	Name assigned to screen button associated with this feature.
PASSWORD	When enabled, requires user to enter a password to access a "closed circuit" TV system.

Secure Channel
Opens the Secure Channel Setup screen. If enabled, one existing input channel can be selected to be a dedicated channel for non-broadcast use. Select the Channel Change button to scroll up or down to the desired channel. Select the Name Change button to input a name for the secure channel using the keyboard display.

If enabled, a password can be assigned to the channel further securing channel access.

► Press OK to accept changes to settings.
► Abort any changes made and return to the previous screen by pressing the CANCEL key.

CONFIGURATION – FM RADIO SETUP

This screen allows storage of desired FM broadcast stations.

ENABLED / DISABLED	Allows FM radio feature to be enabled or disabled. When disabled, it removes all references to the FM radio to user viewing screens.
Presets Setup ENABLED / DISABLED	When disabled, puts FM radio into a "seek" station mode. When enabled allows automatic station scan of FM band or manual inputting of FM stations.
AUTO	Automatically scans the FM radio frequency band and locks in any FM stations that are above a designated signal strength.
MANUAL	Manual entry of FM radio frequencies.
MHZ	Displays selected frequency in Megahertz.
CH DOWN / CH UP	PRESETS SETUP enabled – moves to the next FM station previously recorded by automatic scan or manual input. PRESETS SETUP disabled – seeks the next FM station of a predetermined signal strength.

TV/FM Radio (If Detected)
Brings up TV/FM Radio configuration screen, which is used to set and customize TV and FM radio reception options.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

DISPLAY CONSOLE 97Te and 95Te LCD

CONFIGURATION – SET DATE AND TIME

This screen allows setting of the real-time system clock.

Configuration Menu

Manager

Date and Time Information

| Prev Month | January 2004 | Next Month |

S	M	T	W	T	F	S
28	29	30	31	1	2	3
4	5	6	**7**	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

Today: 1/7/2004

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▲ ▲

▼ ▼

OK   Cancel

Back   Main Menu
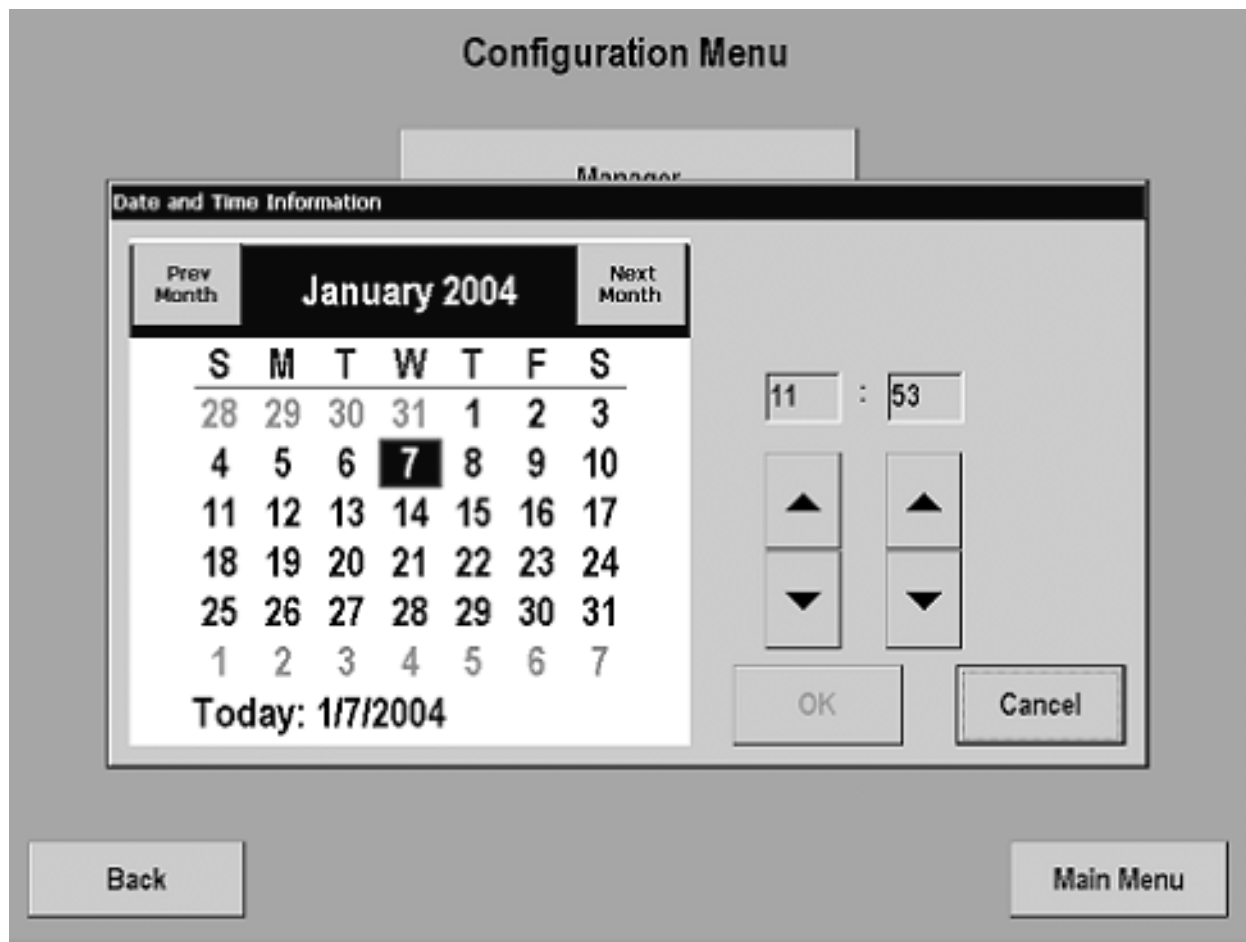
Use PREV MONTH and NEXT MONTH to make appropriate changes to date.

Use the up and down arrows keys to make appropriate time settings.

► Press OK to accept changes to date and time settings.
► Abort any changes made and return to the previous screen by pressing the CANCEL key.

DISPLAY CONSOLE 97Te and 95Te LCD

CONFIGURATION – CUSTOM WORKOUTS

This screen allows set-up of six possible customized workouts.
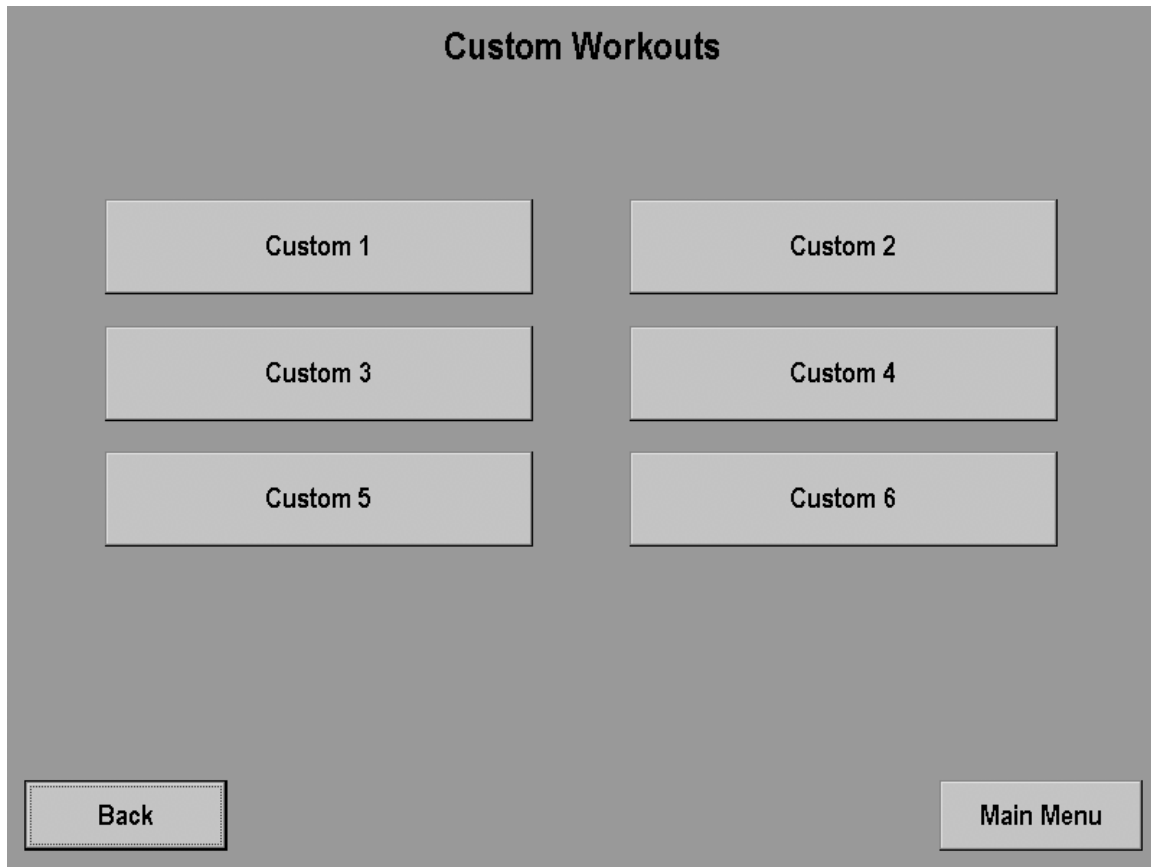
Custom Workouts

Custom 1	Custom 2
Custom 3	Custom 4
Custom 5	Custom 6

Back   Main Menu

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

CONFIGURATION – CUSTOM WORKOUT SETUP (Speed/Incline)

This screen allows a custom workout to be defined based on belt speed and incline position.

CUSTOM WORKOUT NAME	A user assigned name for one of the six possible workouts.
WORKOUT TYPE	Speed / Incline or Target Heart Rate. (0.1 increments)
WORKOUT TIME	Allows adjustment of workout time for a custom workout. (60 minute maximum, 1 minute increments)
MPH UP / DOWN	Belt speed. (0.5MPH increments)
INTERVAL	Interval between workout parameter changes. (Increment = workout time ÷ 30)
INCLINE	Tread incline. (0.1% increments)

► Abort any changes made and return to the previous screen by pressing the CANCEL key.
► Press OK to accept any changes and return to the previous screen.

CONFIGURATION – CUSTOM WORKOUT SETUP (Target Heart Rate)

This screen allows a custom workout to be defined based on a target heart rate.

CUSTOM WORKOUT NAME	A user assigned name for one of the six possible workouts.
WORKOUT TYPE	Speed / Incline or Target Heart Rate.
TARGET HEART RATE %	Allows adjustment of a percentage target heart rate for a selected interval. (1% increments)
INTERVAL	Interval between workout parameter changes. (Increment = workout time ÷ 30)

► Abort any changes made and return to the previous screen by pressing the CANCEL key.
► Press OK to accept any changes and return to the previous screen.

MAINTENANCE - MAINTENANCE

This screen provides logging capabilities for specific maintenance procedures. This information will be stored in the console and is available for viewing by entering MAINTENANCE INFORMATION.

Choose one of the available maintenance procedures to be logged by touching the appropriate selection.

Press the SUBMIT key to select logging of a completed repair procedure.

► Return to the previous screen by pressing the BACK key.
► Press the MAIN MENU key to return to the MAIN MENU screen.

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills

NOTES

SECTION 3

HOW TO…
SERVICE AND REPAIR GUIDE

NOTES

How To... Replace the Upright Covers, Motor Cover, Front Cover

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the mounting screws securing the left and right Inside Upright Covers.

3. Remove the Front Cover screws (4) and remove the Front Cover from the front of the unit.

Front Cover

Upright, LT

Inside Upright Cover, Left

Motor Cover

Upright, RT

Inside Upright Cover, Right
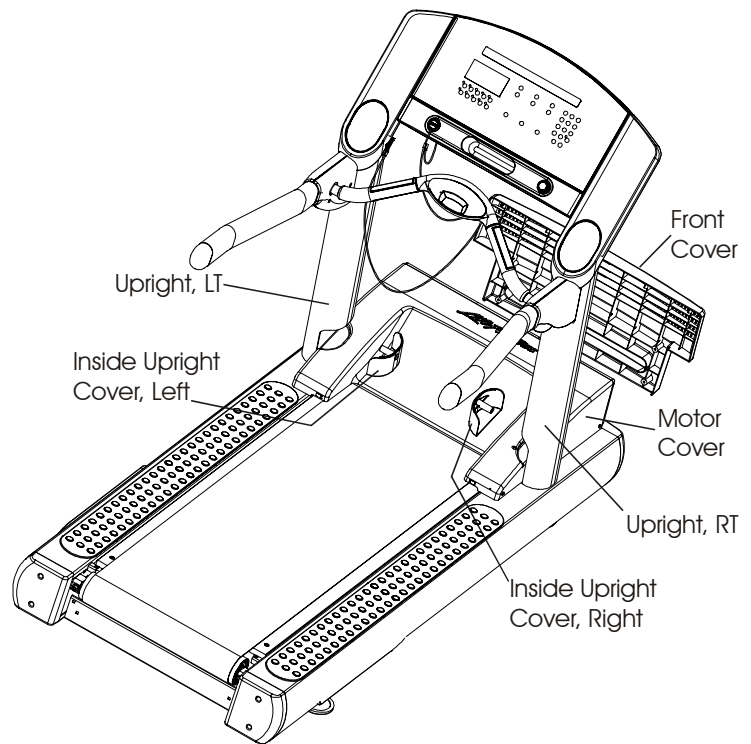
4. Remove the Motor Cover screws (4), and then lift the cover out from between the support Uprights.

5. To re-assemble covers, first install the Motor Cover and secure it in place. Next, install the Front Cover and Inside Upright Covers.
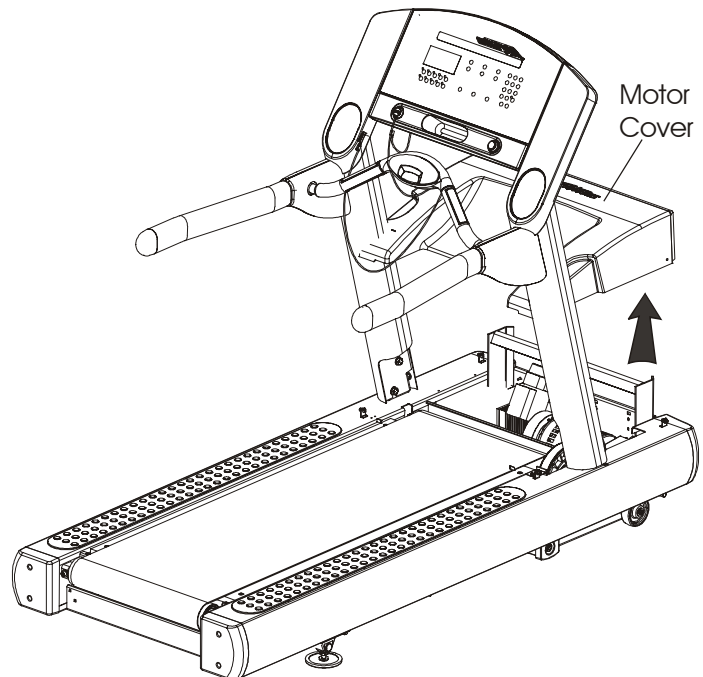
Motor Cover

How To... Replace the Striding Belt and Deck

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the Front Cover. See "How To…" in this section.

3. Remove four screws securing Roller Guards, and remove the Roller Guards from the Rear Roller.

4. Remove the Rear Roller Adjusting Screws.

Note: Index the initial position of the Adjusting Screw or count the number of rotations when loosening the Roller Adjusting Screws for proper Striding Belt re-tensioning.

Roller Guard, LT
Washer
Roller Guard Screw
Rear Roller Adjusting Screws
Roller Guard, RT
Washer
Roller Guard Screw
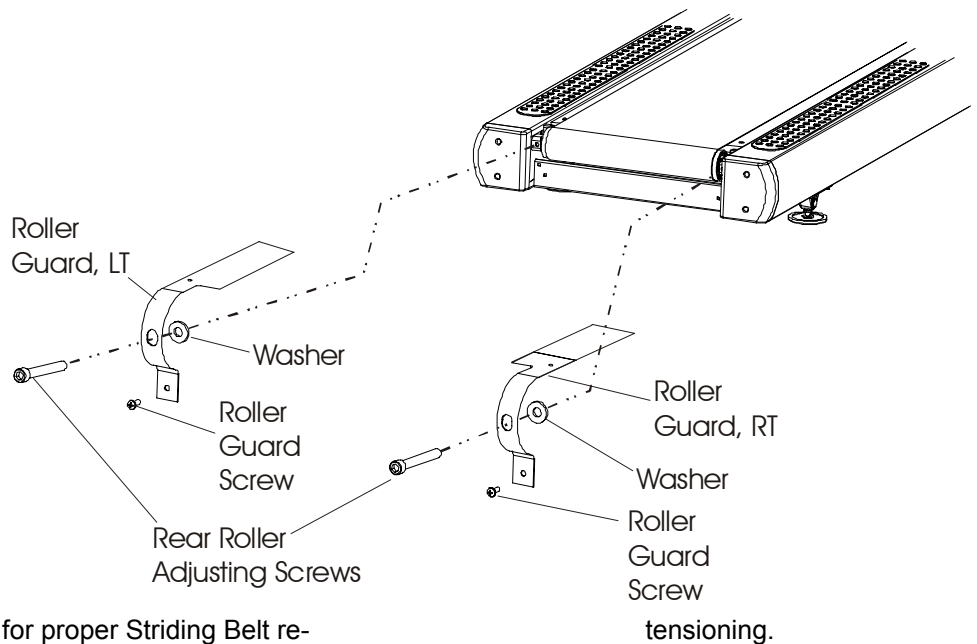
5. Remove the Rear Roller out from under the Striding Belt just enough to mark the end of the shaft so that it can be re-installed in the same way to maintain the same bearing wear pattern. Using a felt-tip marker, mark the letter "R" on the right end of the shaft.

Rear Roller
Letter "R"
Striding Belt

Special Service Tools Required: NONE

6. Remove four Deck screws, one at each
    corner of the deck, and then remove the
    Deck out from under the Striding Belt.

Deck

Striding Belt
Loosened

7. Remove two screws securing the Anti-Static Brush
    Bracket just behind the Front Roller Pulley to avoid
    being damaged during roller removal.

Mounting
Screws

Anti-Static
Brush

Anti-Static
Bracket

Special Service Tools Required: NONE

8. Insert a flat blade screwdriver into the slotted end of the Idler Arm. Raise the Idler Arm just enough to install an Allen wrench into the access hole of the Idler Arm to keep it in a raised position.

    CAUTION: DUE TO EXTREME SPRING TENSION, DO NOT RAISE THE IDLER ARM ANY HIGHER THEN NECESSARY.

Screwdriver
Front Roller
Drive Belt
Idler Pulley
Idler Arm
Allen Wrench
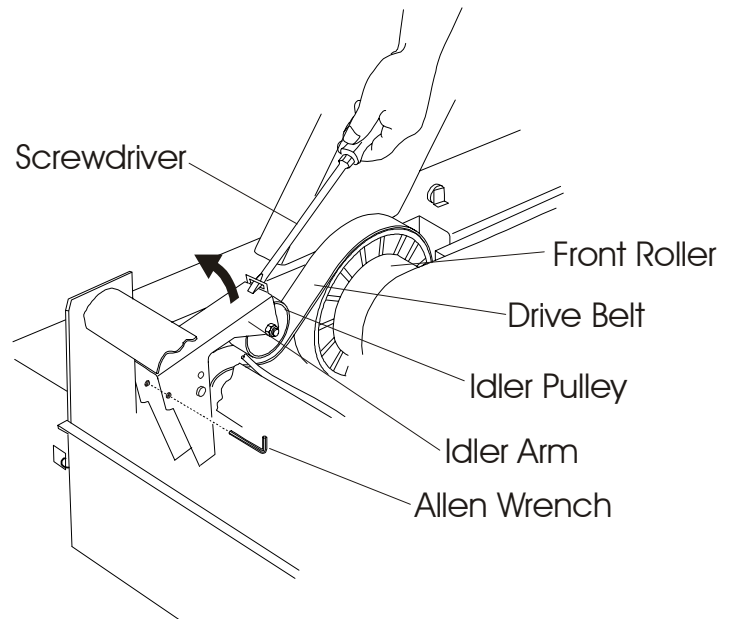
9. Remove the mounting bolt, lock washer, and flat washer securing the Front Roller Shaft at the left side of the Frame.

    Note: Illustration shows Striding Belt removed for purposes of clarity.

10. Move the left end of the Front Roller Shaft into the left side of the Frame.

Bolt
Lock Washer
Washer
Front Roller (LT Side)
Left End

Special Service Tools Required: NONE

11. With the Left End of the Shaft moved into the Left Side of the Frame, the Right End of the Front Roller should clear the Access Hole in the Right Side Frame. At this time, remove the Motor Drive Belt from the Front Roller Pulley.

Access Hole

End of Shaft
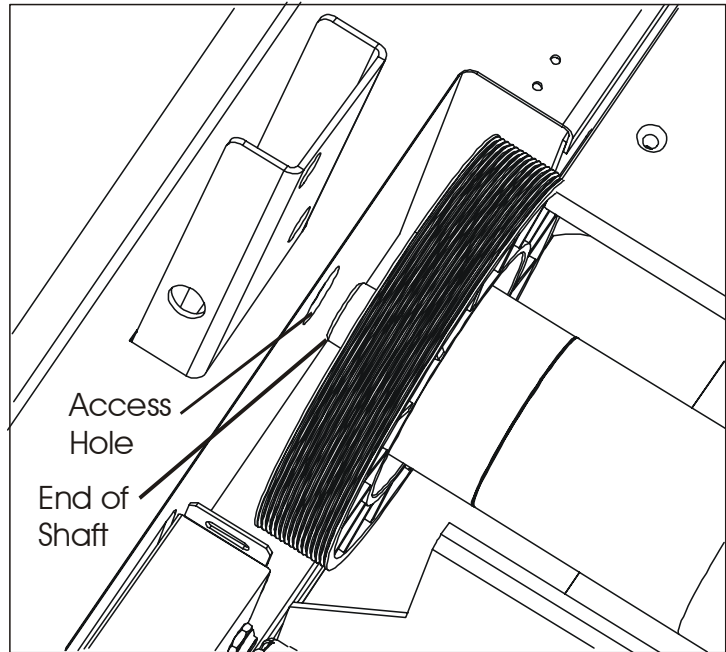
Right End of Front Roller as Viewed From Front of Unit

12. Remove the Front Roller out from under the Striding Belt.

Note: For clarity purposes, the Console and Uprights have been removed.
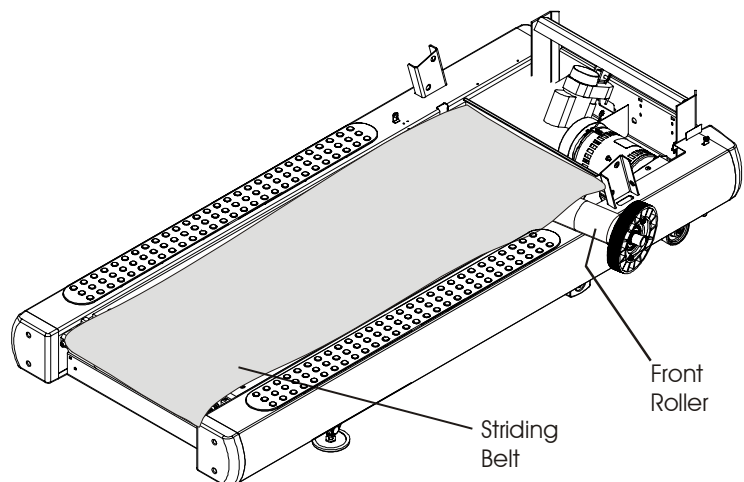
Front Roller

Striding Belt

How To... Replace the Striding Belt and Deck - Continued

Special Service Tools Required: NONE

13. Move the Striding Belt aside to gain to remove the Anti-Static Tinsel.

14. With the tinsel and rollers removed, remove the Striding Belt from the Frame and discard.

STRIDING BELT INSTALLATION

Note: Use the exploded view to aid in re-assembly and installation of treadmill components.

1. Position the new striding belt inside the unit.

Note: Make sure that the arrow on the inside of the belt points in the direction of belt rotation.

2. Replace the Anti-Static Tinsel at this time, and install between the side frames.

3. Position the Front Roller under the Striding Belt and install the Motor Drive Belt back on the Front Roller Pulley. Then place the Right Side Shaft in the Access Hole and secure the Left Side Front Roller Shaft with the mounting bolt and washers.

4. Install new Deck or flip the existing Deck. Secure the Deck with the four mounting screws.

5. Before installing the Rear Roller, remove any wax build-up on the roller. Position the Rear Roller under the Striding Belt. Make sure that the "R" identification mark at the end of the roller shaft is positioned accordingly for proper bearing wear.

6. Secure the Rear Roller Adjusting Screws by hand. DO NOT TIGHTEN THESE SCREWS AT THIS TIME. The belt should remain loose.

7. Adjust the Striding Belt. See "How To..." on the following pages.

8. After the Striding Belt is properly adjusted, reinstall the inside Upright Covers, Motor Cover, and Front Cover.

9. Refer to the Diagnostics Section to log-in maintenance repair of the striding belt.
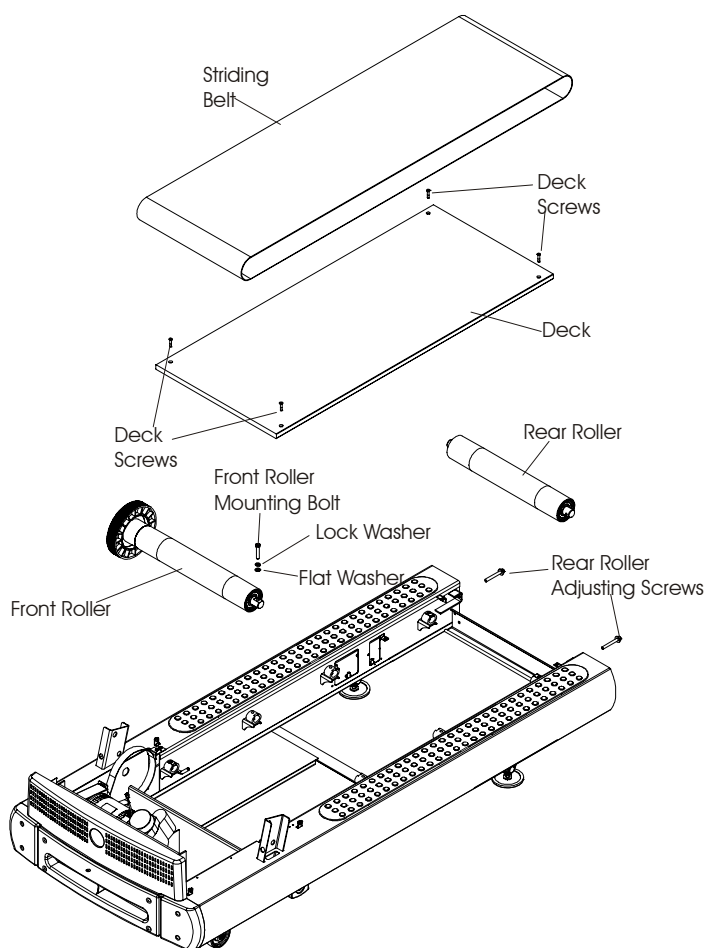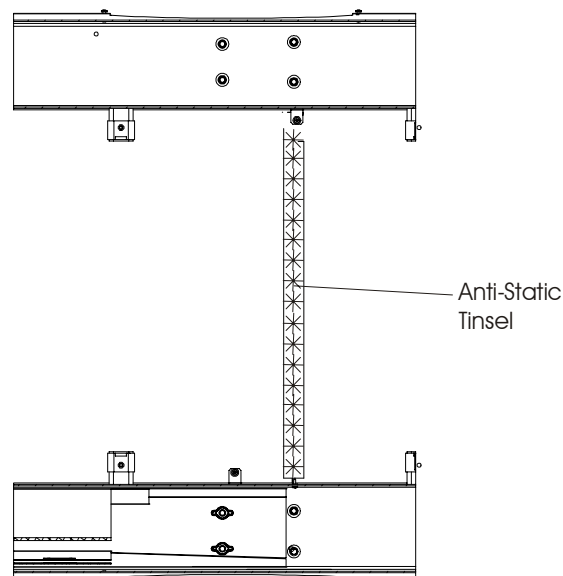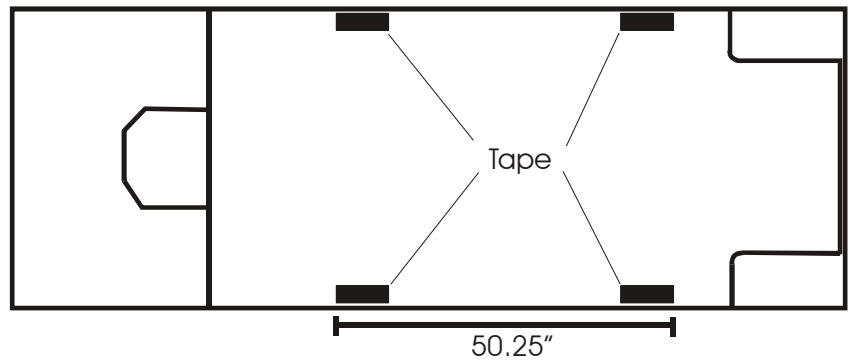
How To... Tension New Striding Belt

Special Tools Required: None

1. Center the loose striding belt on front and rear rollers.

2. Place two pieces of masking tape 50" apart on the right and left side edges of the striding belt as shown.
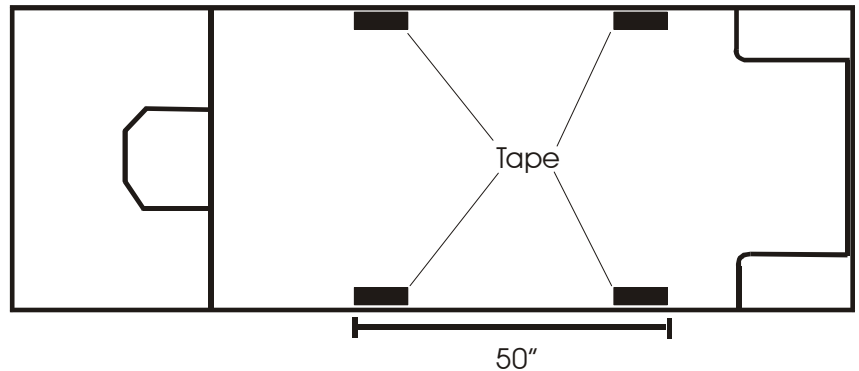
3. Tighten tensioning bolts until the distance between tapes (both sides) is increased to 50.25". At this point, the belt is properly tensioned.

4. Adjust the striding belt tracking. See How To... Adjust the Striding Belt Tracking.

NOTE: Refer to MAINTENANCE in diagnostics section to log this event.

How To... Tension Existing Striding Belt

Special Service Tools Required: None

1. Locate the belt tensioning bolt on each side of the rear roller. The tensioning bolts are accessible through the holes provided in the rear roller guards.

2. Return the tensioning bolts to their approximate original position using the count of the number of rotations required for removing them.

NOTE: If this rotational count is unavailable, hand-tighten tensioning bolts plus an additional two turns before continuing tensioning process.

3. Enter SPEED MANUAL and run unit for at 5.0 mph (8.0 km/h) for five minutes.

NOTE: Do not walk or run on the treadmill during this time. Ensure that the belt is centered. If the belt is not centered then see "How To" on next page.

4. Set the striding belt speed to 2 mph (3.2 km/h). Begin walking on the treadmill. Tightly grasp the handrails and make a deliberate attempt to slow the striding belt. If belt slippage is detected, proceed to step 5, otherwise proceed to step 6.

5. Stop belt and increase belt tension on each side by 1/4-turn. Return to step 3.

 NOTE: Make tension adjustments in 1/4 turn increments.

6. With the belt running, note its tracking on the deck surface. If the belt is offset to the right, turn the right tensioning bolt 1/8 turn counterclockwise and the left tensioning bolt clockwise an equal amount. If the belt is offset to the left, turn the left tensioning bolt 1/8 turn clockwise and the right tensioning bolt counter-clockwise the same amount. Repeat adjustment as necessary. Allow the unit to operate for several minutes after each adjustment to see that the belt remains centered on the deck surface.

NOTE: Make tracking adjustments in 1/8 turn increments.
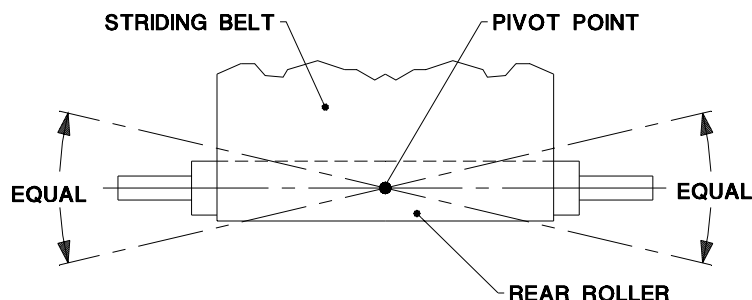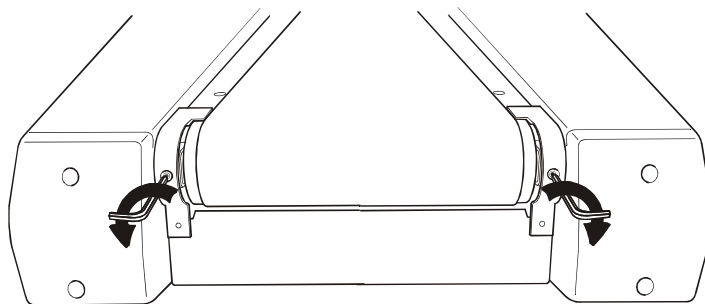
How To... Adjust the Striding Belt Tracking

**Special Service Tools Required: None**

IMPORTANT - It is critical that the treadmill be level prior to any tracking adjustments. An unstable or leaning unit can cause the striding belt to drift to one side. Refer to "How To…Remove the Leveler Assembly".

1. Turn unit power ON and use the SPEED AUTOMATIC mode to set the belt speed to 2.5 mph.

2. Check the belt tracking at 2.5 mph speed. If the belt is offset to the right, turn the right tensioning bolt clockwise and the left tensioning bolt counterclockwise the same amount to bring the belt back to a center position. If the belt is offset to the left, turn the left tensioning bolt clockwise and the right tension bolt counterclockwise the same amount to bring the belt back to a center position.
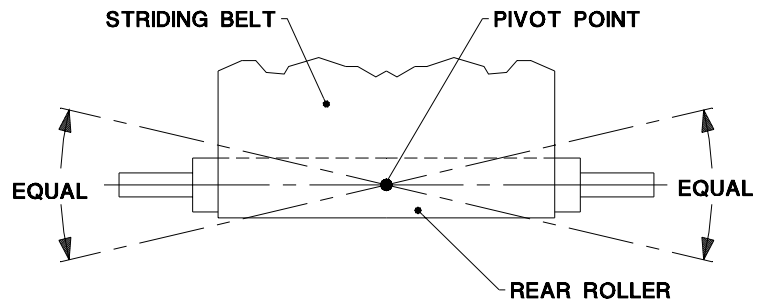
NOTE: Adjust tensioning bolts in 1/8 turn increments.

3. If the striding belt has moved to the right, turn the right tension bolt 1/8 turn clockwise and the left tension bolt 1/8 turn counter-clockwise to start moving the striding belt back to the center of the rear roller.

4. If the striding belt has moved to the left, turn the left tension bolt 1/8 turn clockwise and the right tension bolt 1/8 turn counterclockwise to start moving the striding belt back to the center of the rear roller.
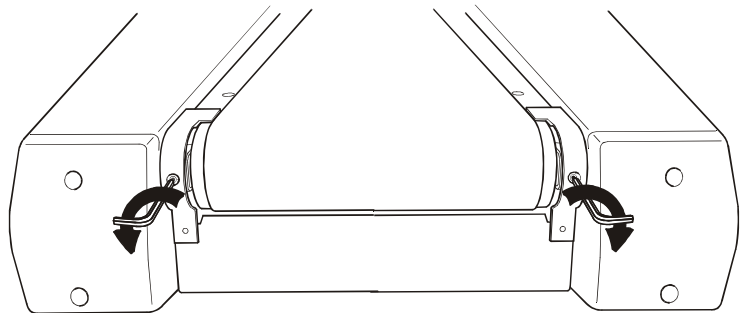
5. Repeat this adjustment until the striding belt appears centered. Allow the unit to operate for several minutes to see that the belt remains in the centered position.

NOTE: During the adjustment do not exceed one full turn of the adjusting screws in either direction to avoid significant changes in belt tension.

How To... Replace the Drive Motor Belt

Special Service Tools Required: NONE

1. Turn the unit power OFF at the Switch, and then unplug the line cord at the wall outlet.

2. Remove the inside Upright Covers, Front Cover, and Motor Cover. See "How To..." in this section.

3. Loosen the Rear Roller Adjusting Screws to slacken the Striding Belt enough to allow side-to-side movement of the Front Roller.

Note: Index the initial position of the Adjusting Screw or count the number of rotations when loosening the Roller Adjusting Screws for proper Striding Belt re-tensioning.

4. Remove two screws securing the Anti-Static Brush Bracket just behind the Front Roller Pulley to avoid being damaged during roller removal.

5. Remove the mounting bolt securing the end of the Front Roller Shaft on the left side of the Frame.
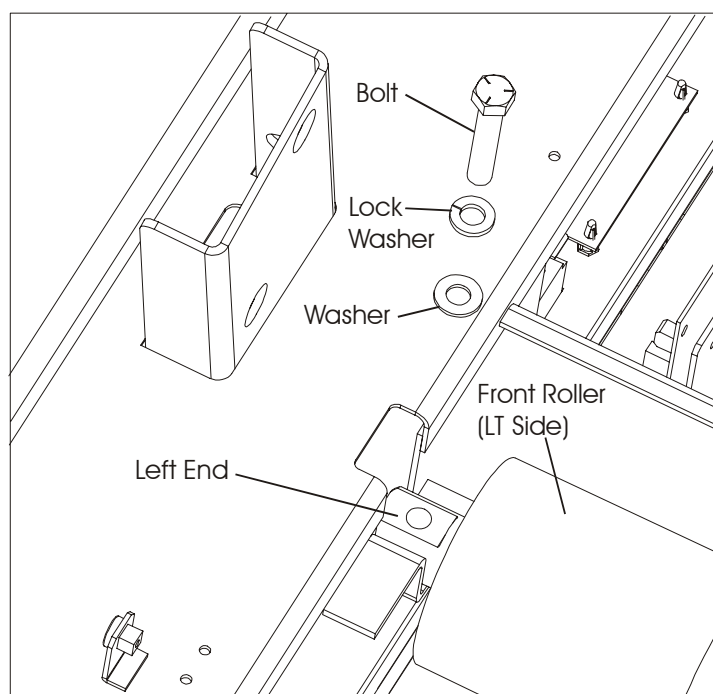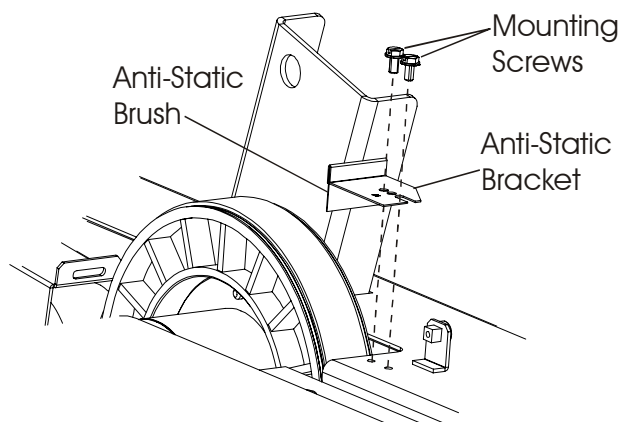
Left Side of the Unit Frame

6. Loosen the tension on the Drive Motor Belt by inserting a flat blade screwdriver into the slotted end of the Idler Arm. Raise the Idler Arm just enough to install an Allen wrench into the Access Hole in the Idler Arm to keep it in a raised position.

CAUTION: DUE TO EXTREME SPRING TENSION, DO NOT RAISE THE IDLER ARM ANY HIGHER THAN NECESSARY.
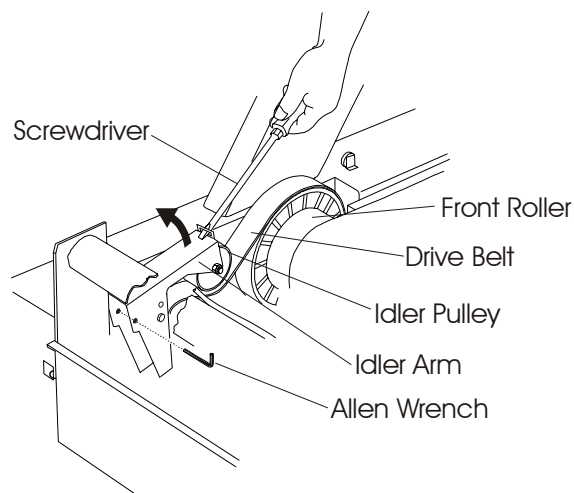
How To... Replace the Drive Motor Belt - Continued

Special Service Tools Required: NONE

7. Move the left side of the Front Roller Shaft end into the left side of the Frame so that the Pulley Shaft end clears the Access Hole in the right side.

8. Remove the old Drive Belt from the Front Roller Pulley and Motor Pulley.

9. Install a new Drive Motor Belt in the reverse order.

10. Re-tension the Striding Belt. See "How To…" in this section.
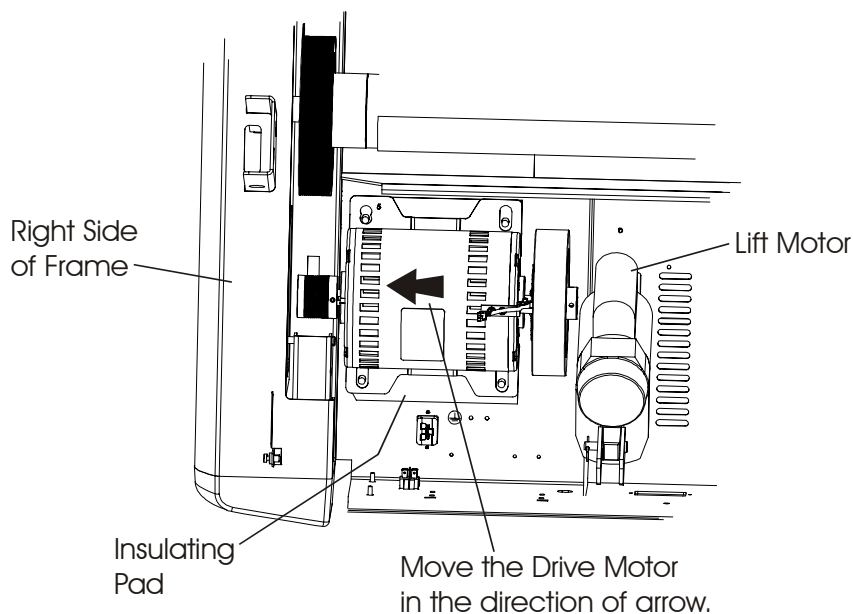
11. Re-install Covers.
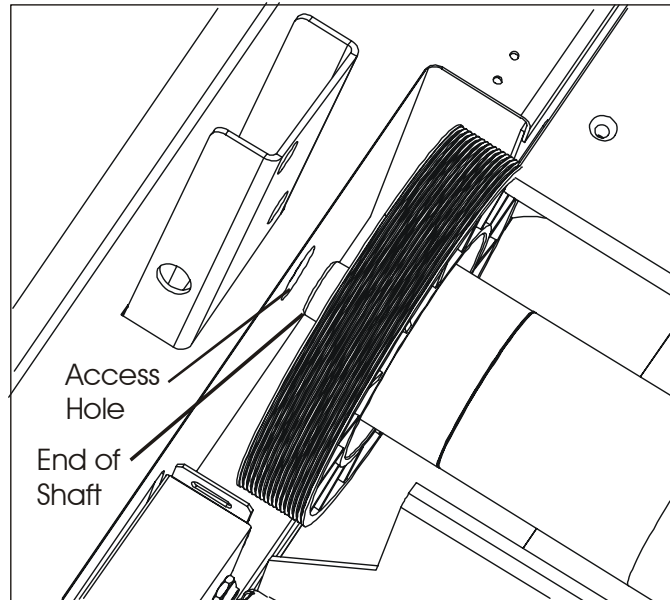
Access Hole

End of Shaft

Right End of Front Roller as Viewed From Front of Unit

How To... Replace the Drive Motor

Special Service Tools Required: NONE

Note: The Drive Motor weighs approximately 50lbs. It is also in close proximity to other components. Therefore, care should be taken when lifting out the Motor not to injure yourself or bang the Motor up against these components.

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the inside Upright Covers, the Front Cover, and the Motor Cover. See "How to…" in this section.

3. Disconnect two Cable Connectors from the Motor, or disconnect the 3-Pin and 5-Pin Connectors between the Motor and Motor Controller.

4. Loosen the tension on the Drive Motor Belt by inserting a flat blade screwdriver into the slotted end of the Idler Arm. Raise the Idler Arm just enough to install an Allen wrench into the Access Hole of the Idler Arm to keep it in a raised position.
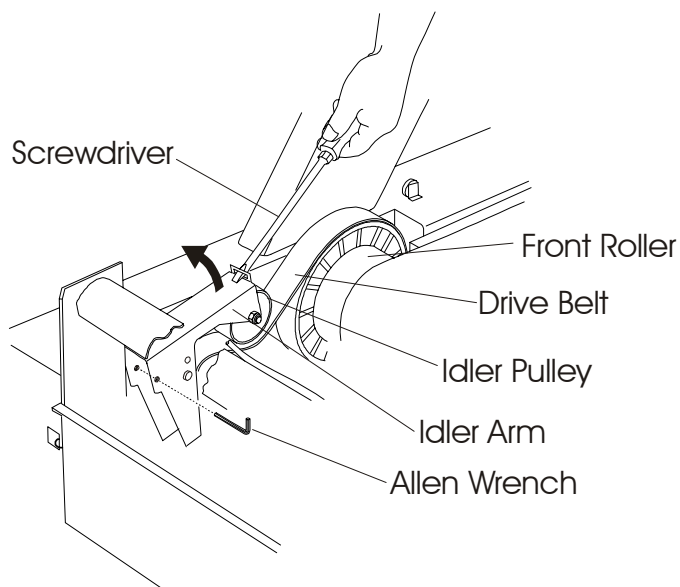
CAUTION: DUE TO EXTREME SPRING TENSION, DO NOT RAISE THE IDLER ARM ANY HIGHER THAN NECESSARY.

5. Remove the four Lock Nuts, Flat Washers, and Insulating Washers from the Motor Studs.

Note: The Motor weighs close to 50 lbs. Before proceeding to the next step, make certain that this weight can be handled.

6. Initially lift the Motor off its studs. Then move the Drive Motor in towards the Left Side of the Frame to allow added clearance between the Pulley and Lift Motor. Then tilt the Pulley end up first, and continue to lift out the Motor at this angle. Once the motor is out, remove the Insulating Pad under the Motor Plate.

Note: Illustration shown, is without a number of drive and unit components for clarity purposes.

Screwdriver — Front Roller — Drive Belt — Idler Pulley — Idler Arm — Allen Wrench

Right Side of Frame — Lift Motor — Insulating Pad — Move the Drive Motor in the direction of arrow.

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
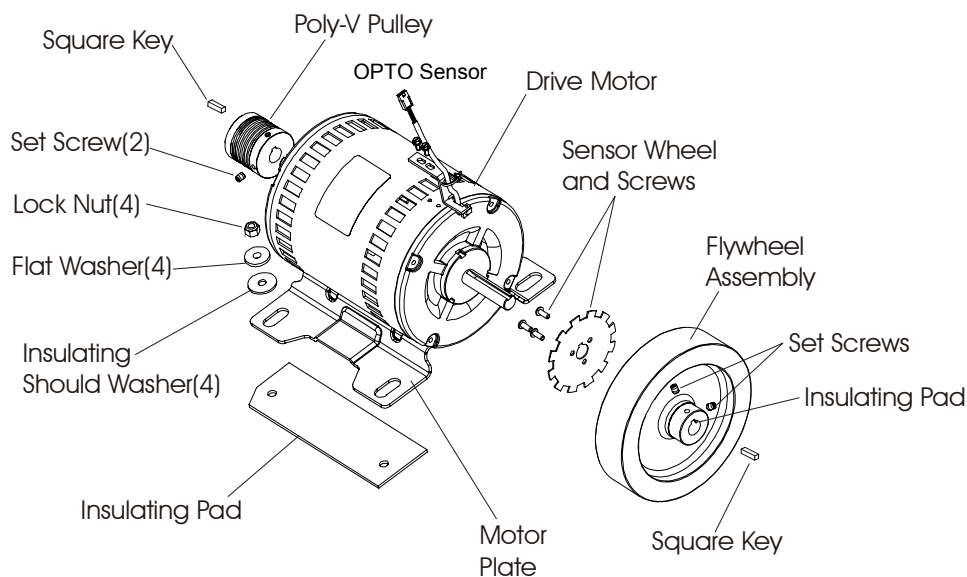# How To... Replace the Drive Motor - Continued

Special Service Tools Required: NONE

7. With the Motor out of the unit, remove the Flywheel and Poly-V Pulley, which are held on by Set Screws. Keep these components and all hardware together for the new Motor.

8. Remove the OPTO Sensor.

9. Install the new Motor in reverse order making sure to install the Flywheel with Square Key back on the new Drive Motor shaft. Then apply LOCTITE® 242 on the Set Screw threads and tighten Flywheel position.

Square Key, Poly-V Pulley, OPTO Sensor, Drive Motor, Set Screw(2), Lock Nut(4), Flat Washer(4), Insulating Should Washer(4), Insulating Pad, Motor Plate, Sensor Wheel and Screws, Flywheel Assembly, Set Screws, Insulating Pad, Square Key

10. Install the Poly-V Pulley onto the Motor Shaft. Then install Set Screws without LOCTITE®242 until after the Pulley has been aligned.

11. Install the new Motor, reconnect the Drive Belt, and reconnect all connectors to the Motor Controller.

POLY-V PULLEY ALIGNMENT

1. Check that the outer face of the Poly-V Pulley is in alignment with the outer face of the Front Roller Pulley. Use a straight edge to achieve alignment. To adjust move the Poly-V Pulley in or out on the shaft, and then tighten one of the two Set Screws. Remove the other Set Screw and apply LOCTITE® 242 on its threads and secure back into the Pulley. Remove the other Set Screw without LOCTITE® 242 and repeat LOCTITE application.

Front Roller Pulley, Straight Edge, Poly-V Motor Pulley
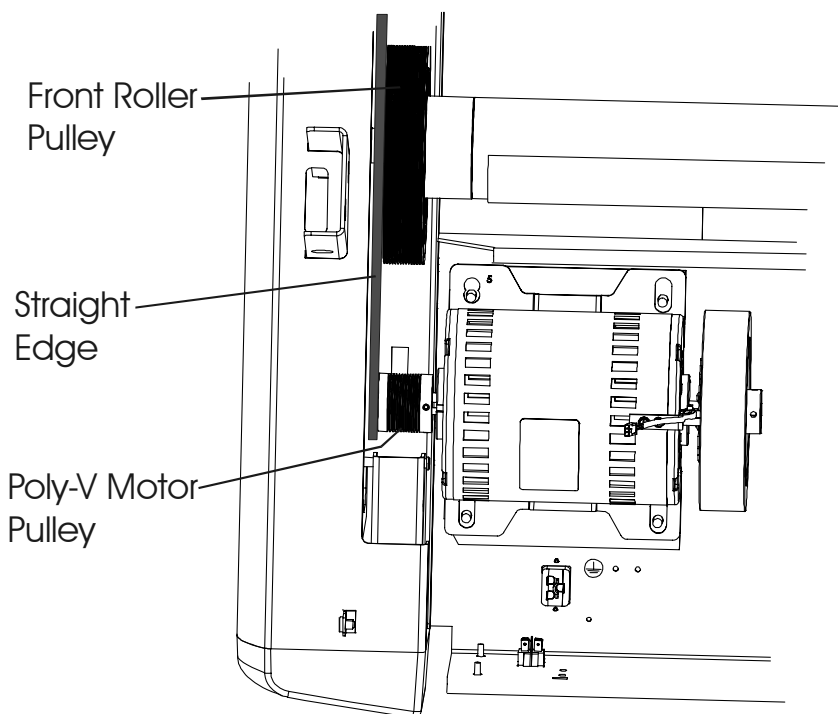
2. Before releasing the Idler Tensioning Arm, make sure that the Drive Belt is positioned on the far left Poly-V Pulley groves.

3. Reinstall the Motor Cover, Front Cover, and inside Upright Covers.

4. Refer to Diagnostics Section to Log Maintenance Repair of the Drive Motor.

How To... Replace the Drive Motor OPTO Sensor

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the inside Upright Covers, the Front Cover, and the Motor Cover. See "How to…" in this section.

3. Cut the Tie Wrap from around the Bracket.

4. Remove two Mounting Screws securing the Bracket to the top of the Motor.

5. Lift out the OPTO Sensor from between the Flywheel Assembly and the Motor, and discard.

6. Install new OPTO Sensor in reverse order. Move the OPTO Sensor Bracket so that the sensor is centered over the Chopper Wheel.
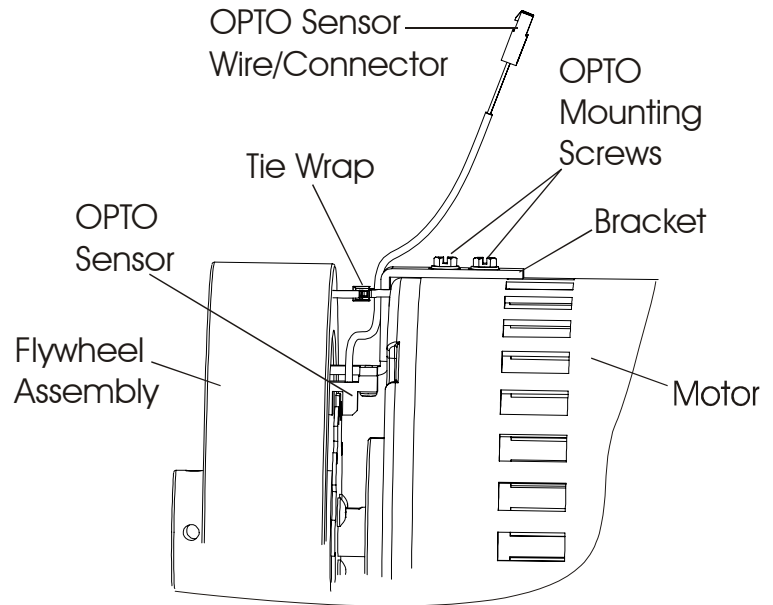
How To... Replace the Front Roller

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the Inside Upright Covers, the Front Cover, and the Motor Cover. See "How To…" in this section.

3. Loosen the Rear Roller Adjusting Screws to slacken the Striding Belt enough to allow side-to-side movement of the Front Roller.

Note: Index the initial position of the Adjusting Screw or count the number of rotations when loosening the Roller Adjusting Screws for proper Striding Belt re-tensioning.

4. Insert the end of a flat blade screwdriver in the slot of the Idler Arm. Raise the Idler Arm and insert an Allen wrench in the Idler Arm Access Hole to keep it in a raised position.
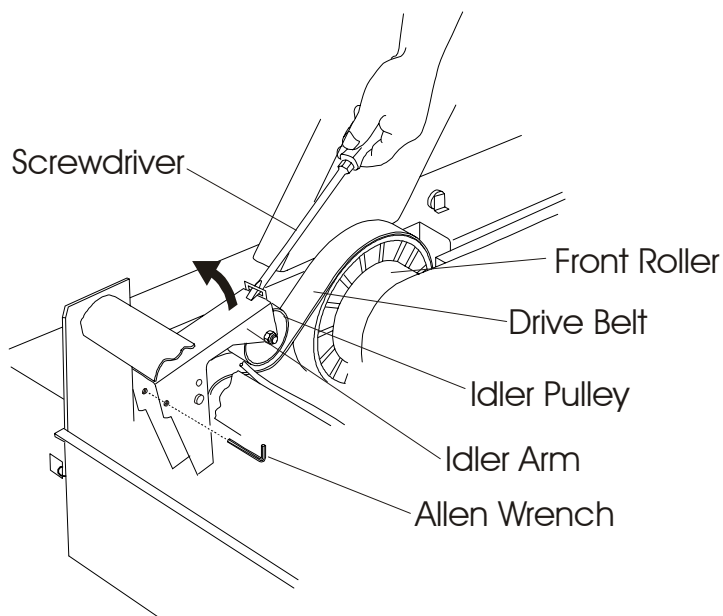
CAUTION: DUE TO EXTREME SPRING TENSION, DO NOT RAISE THE IDLER ARM HIGHER THAN REQUIRED TO INSTALL THE ALLEN WRENCH.

5. Remove two screws securing the Anti-Static Brush Bracket just behind the Front Roller Pulley to avoid being damaged during roller removal.

Screwdriver

Front Roller

Drive Belt

Idler Pulley

Idler Arm

Allen Wrench

Mounting Screws

Anti-Static Brush

Anti-Static Bracket
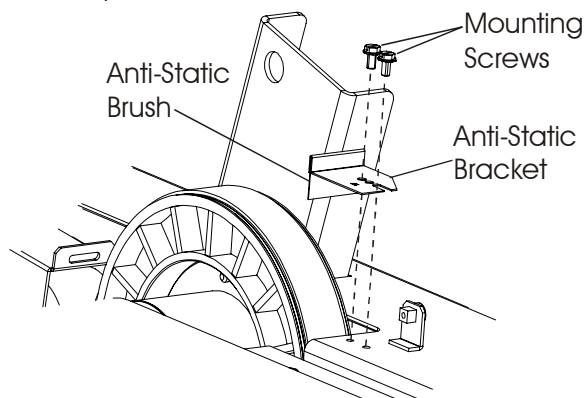
6. Remove the mounting bolt, lock washer, and flat washer securing the Left Front Roller Shaft at the Left Side of the Frame.

Note: Illustration shows striding belt removed for purposes of clarity.

Bolt

Lock Washer

Washer
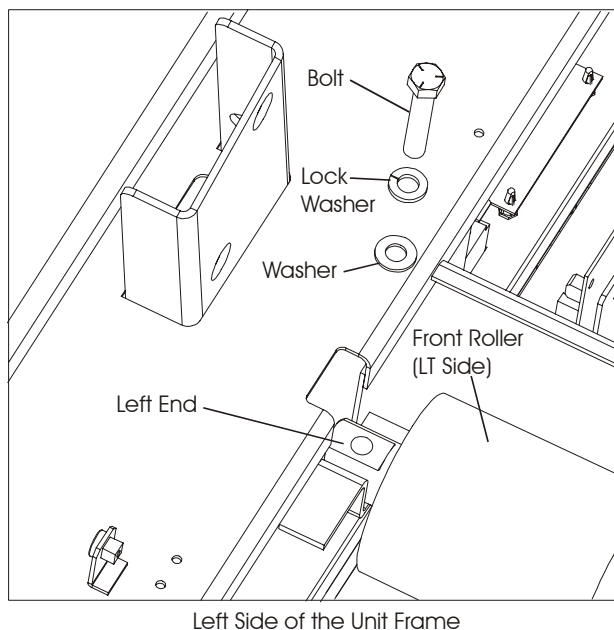
Front Roller (LT Side)

Left End

Left Side of the Unit Frame

How To... Replace the Front Roller - Continued

Special Service Tools Required: NONE

7. Move the Left Front Roller Shaft end into the Left Side of the Frame so that the right side of the Pulley Shaft end clears the Access Hole in the right side of the frame to allow the Motor Belt clearance for removal. Slip the Motor Belt off the Front Roller Pulley at this time.

Access Hole

End of Shaft
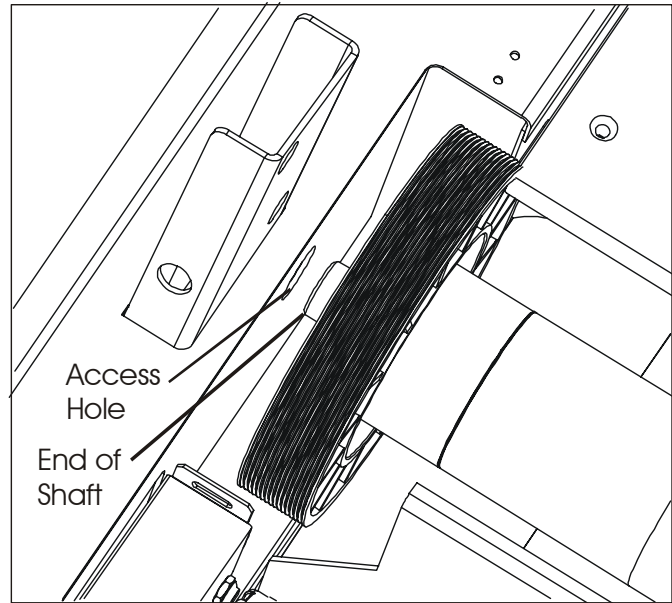
Right End of Front Roller as Viewed From Front of Unit

8. From the right side of the frame, remove the Front Roller out from under the Striding Belt.
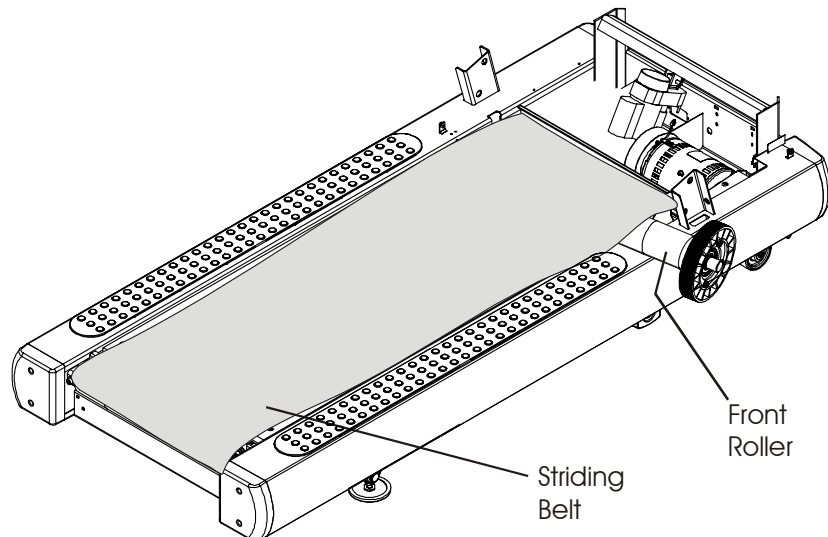
Front Roller

Striding Belt

How To... Replace the Front Roller - Continued

Special Service Tools Required: NONE

8. With the Front Roller out. Remove the Pulley and Hardware and save for the new Front Roller.

9. Install Pulley on the new Front Roller.

10. Install the Front Roller into position and secure in place with the mounting bolt, lock washer, and flat washer on the left side of the roller shaft.

11. Make sure that the Motor Drive Belt is positioned on left side groves of the Front Roller Pulley.

12. Lower the Idler Arm Roller against Drive Motor Belt.

13. Refer to "How To…" Adjust Striding Belt Tracking or Tensioning in this section.
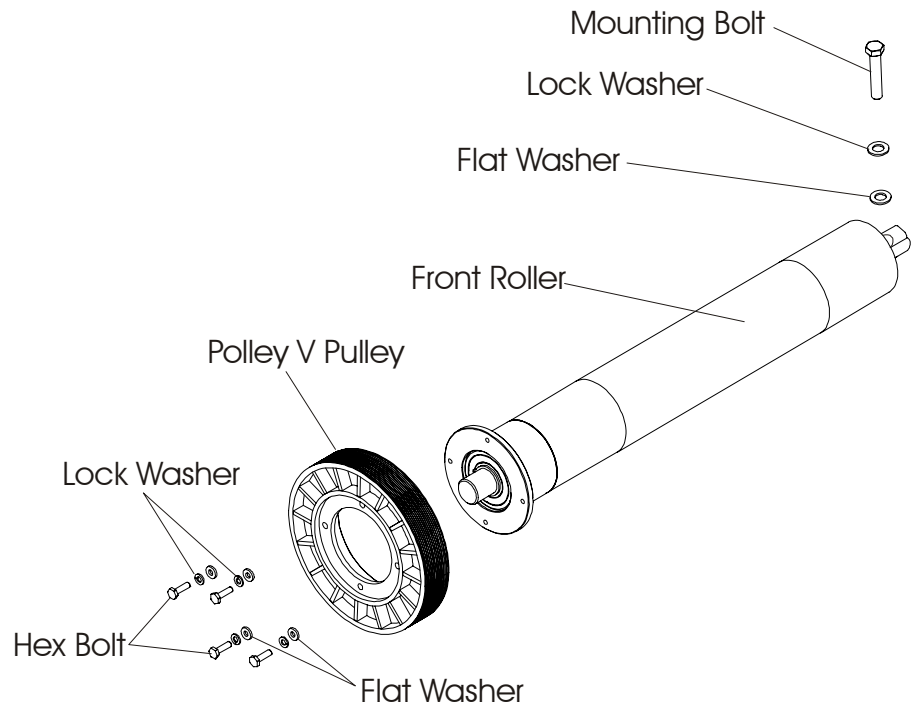
Mounting Bolt

Lock Washer

Flat Washer

Front Roller

Polley V Pulley
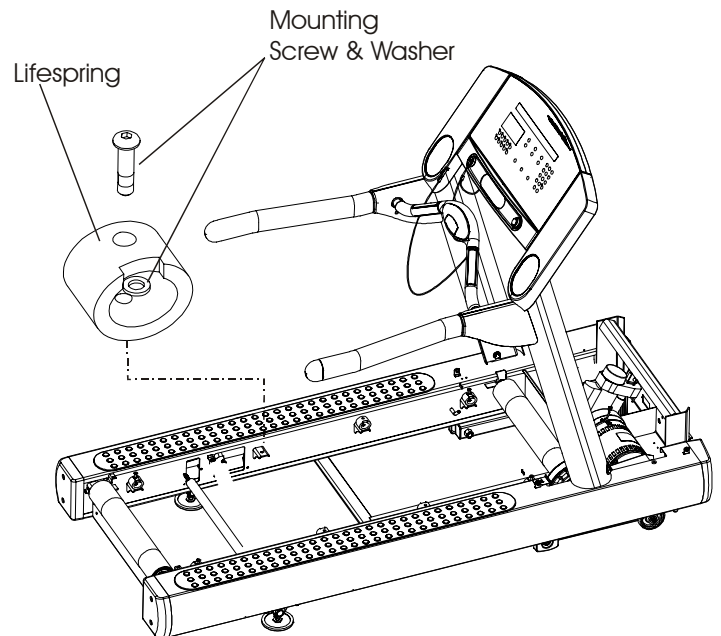
Lock Washer

Hex Bolt

Flat Washer

How To... Replace the Rear Roller

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove four screws securing the Roller Covers and Guards, and then remove the Roller Covers and Guards from the Rear Roller.

Roller Guard, LT

Washer

Roller Guard Screw

Rear Roller Adjusting Screws

Roller Guard, RT

Washer

Roller Guard Screw
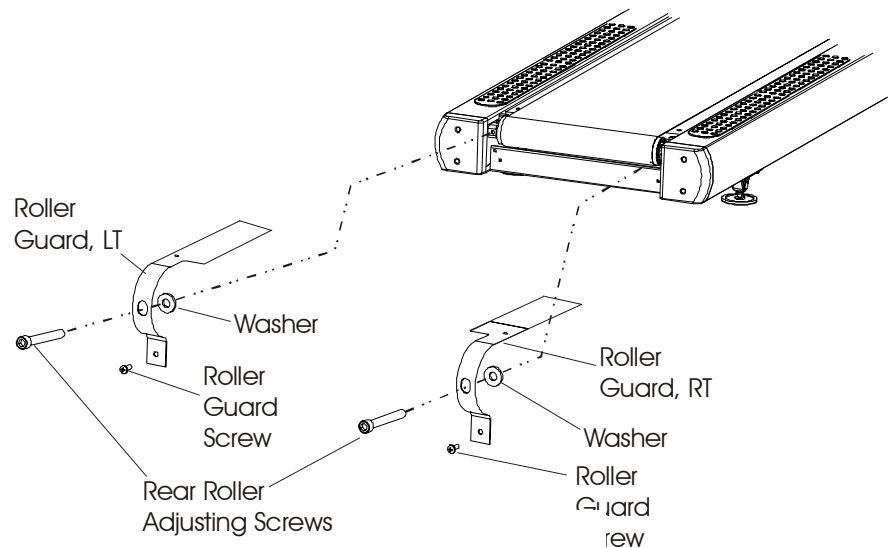
3. Index the initial position of the Adjusting Screw or count rotations, and remove the Rear Roller Adjusting Screws. See "How to…" in this section.

4. Remove the Rear Roller out from under the Striding Belt and discard.

5. Install a new Rear Roller in the reverse order of removal.

6. Reinstall Tensioning Bolts back in the Rear Roller.

7. Refer to "How To…" Adjust Striding Belt Tracking or Tensioning in this section.

8. Reinstall the Rear Roller Guards and Covers.
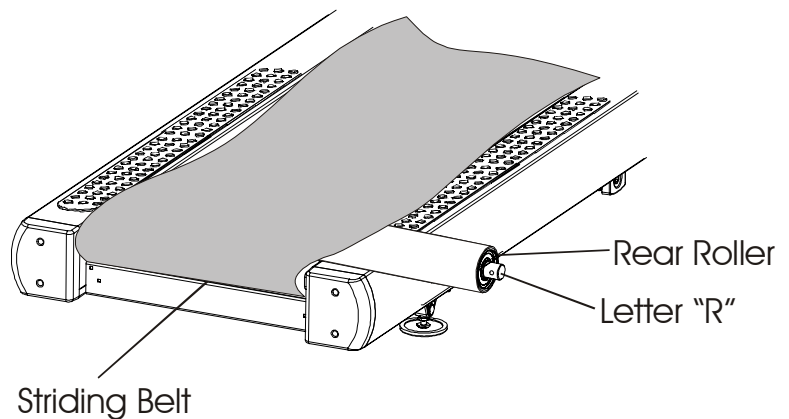
Rear Roller

Letter "R"

Striding Belt

How To... Replace the Rear Roller Guards

Special Service Tools Required: NONE

1. Remove the Screws securing the Rear Roller Guard Assembly to the Frame.

Roller Guard, LT

Washer

Roller Guard Screw

Rear Roller Adjusting Screws

Roller Guard, RT

Washer
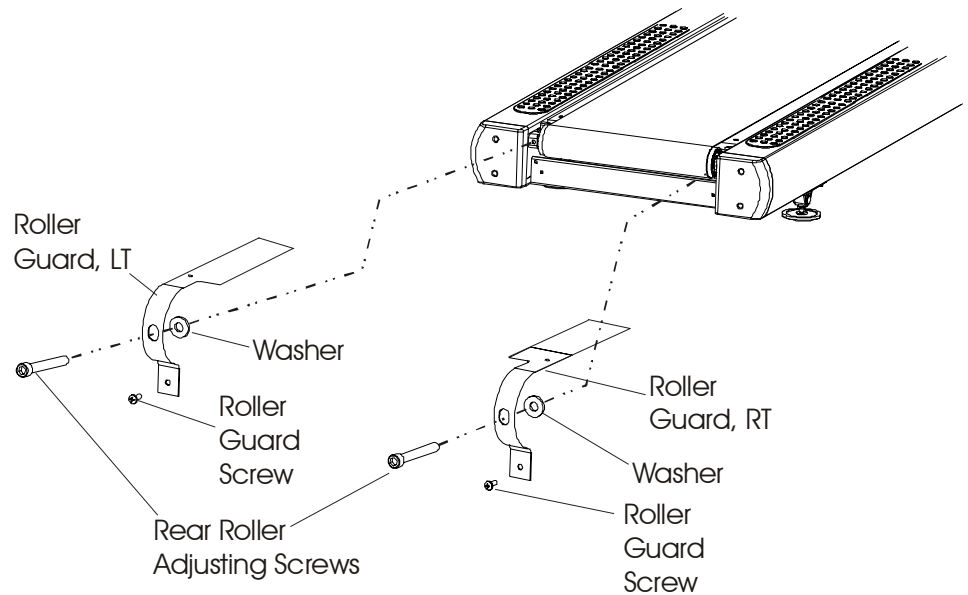
Roller Guard Screw

2. Place Roller Guard in position as shown with the top surface under walking belt. Align mounting holes.

Roller Guard to be located between belt and deck
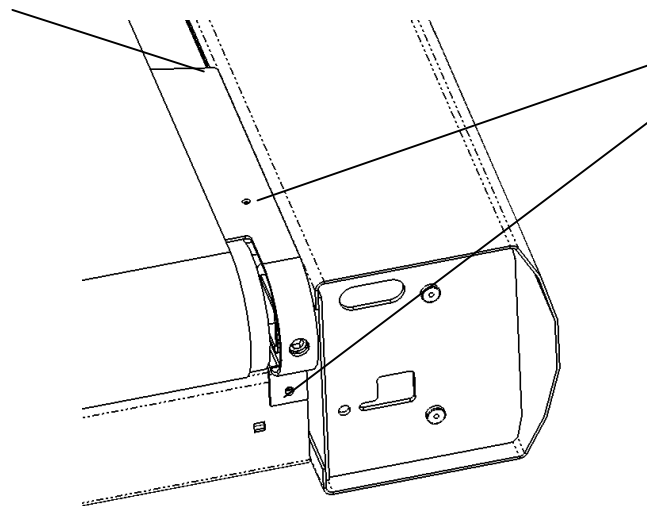
Align mounting holes with grommet holes

3. Install Screws and fasten securely. Approx. 22-37 in/lbs.

4. Repeat steps for opposite side. After completion run treadmill and check for interference or binding. If needed loosen Mounting Screws, re-align Guard, and refasten securely.

How To... Replace the LifeSpring® Absorbers

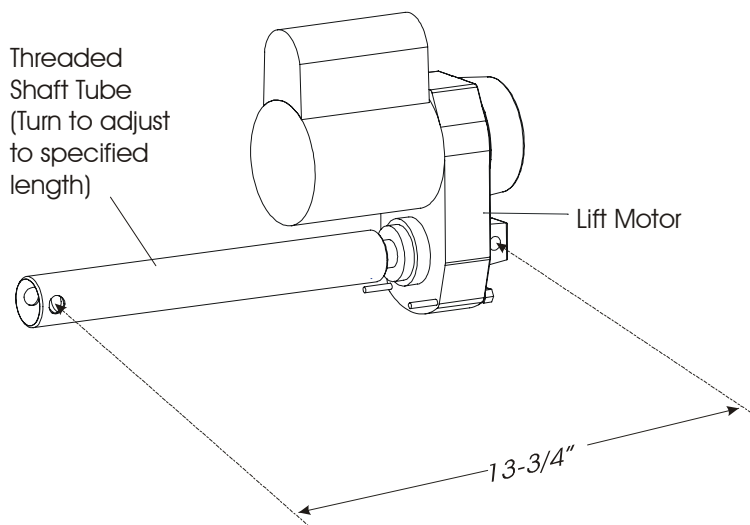**Special Service Tools Required: NONE**

1. Turn the unit power OFF at ON/OFF Switch and unplug line cord at wall outlet.

2. Remove the inside upright covers, front cover, and motor cover. See "How To…" in this section.

3. Loosen the rear roller tensioning bolts so that the striding belt is loose enough for deck removal. Count the number of rotations when loosening the roller adjusting screws to provide a starting point for belt re-tensioning.
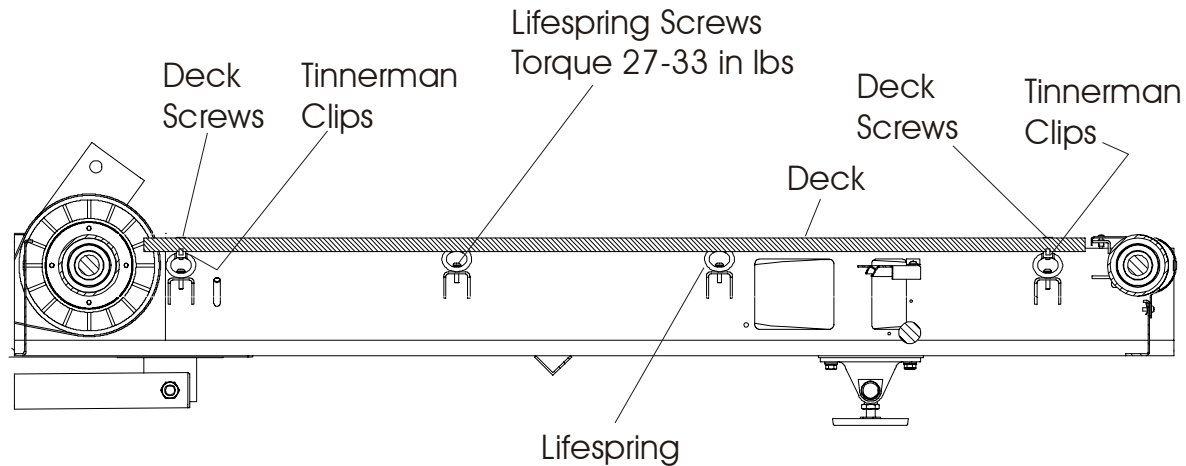
4. Remove the four deck screws, one at each corner.

5. Remove the deck out from under striding belt.

6. Remove the Tinnerman clips.

7. Remove LifeSpring® screws and LifeSprings® from frame.

8. Install LifeSprings® with notch in the LifeSpring® facing towards the inside of the frame, and then torque screws to 27-33 in lbs.

9. Reinstall Tinnerman clips on the LifeSprings® at each corner of the unit.

10. Reinstall deck.

11. Re-tension striding belt. Refer to "How To" in this section.

12. Reinstall motor cover, front cover, and the inside upright covers.

How To... Replace the Anti-Static Tinsel

Special Service Tools Required: NONE

1. Turn unit power off at ON/OFF Switch and unplug line cord at wall outlet.

2. Reach underneath the machine and unclip the anti-static tinsel from right side of frame.

3. Remove the single screw securing the tinsel on the left side of the frame.

4. Install anti-static tinsel in reverse order.
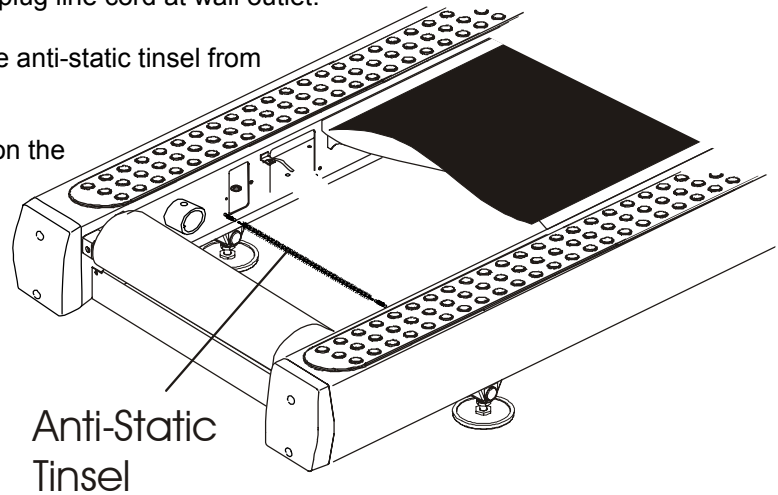
Anti-Static Tinsel

How To... Replace the Lift Motor

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the inside Upright Covers, Front Cover, and Motor Cover. See "How To…" in this section.

3. Cut off three Cable Ties securing the Cables to the Cross-Member.

4. Disconnect the 4-Pin Connector from the Wax Lift Board.

5. Disconnect the Lift Motor ground wire.

6. Remove the right Access Cover to avoid damaging it, and then tilt the unit over on its right side.

7. Remove the Bolt and Nut from the end of the Motor Tube and Lift Frame.

8. Remove the Clip and Pin securing the Lift Motor to the Cross-Member, and then remove the Lift Motor.
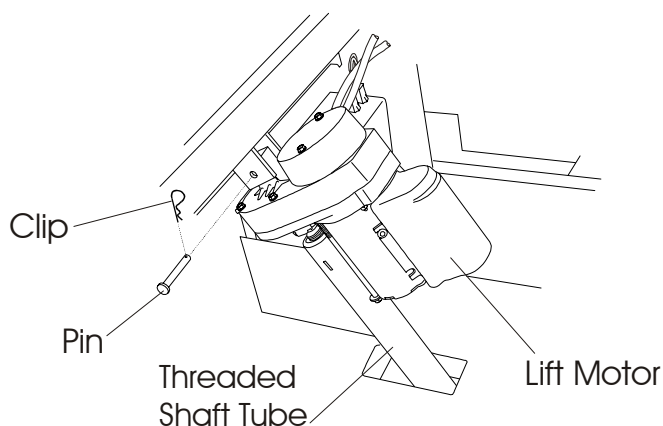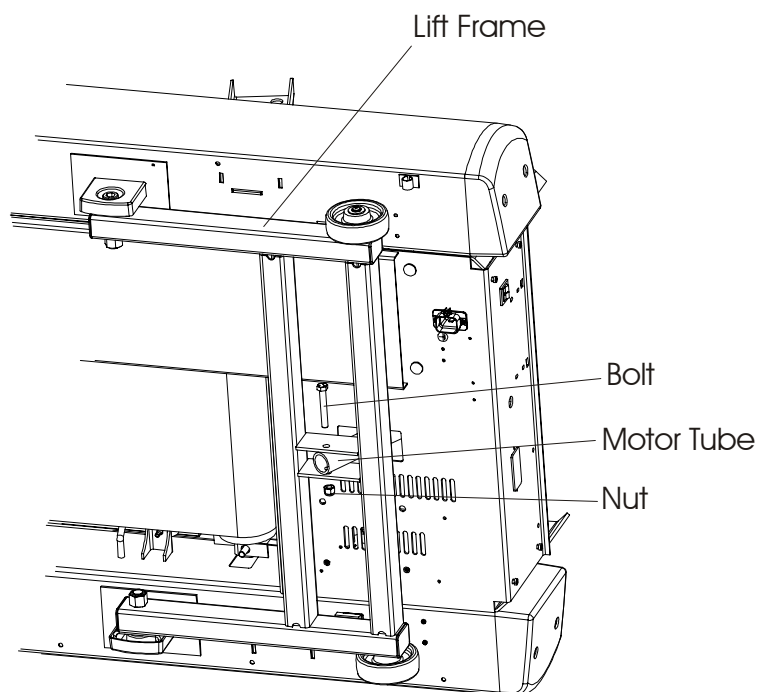
9. To install the new Lift Motor, make sure that the Lift Carriage is activating the Home Switch on 95Ti/e and 93T, and the Decline Switch on the 97Ti/e. If necessary, adjust Threaded Shaft Tube until the mounting holes are 13-3/4" apart or aligned with the Carrier and Lift Motor.

10. Refer to Diagnostics Section to log Maintenance Repair of the Lift Motor.

NOTE: Do not rotate the Threaded Shaft Tube more than one full turn.

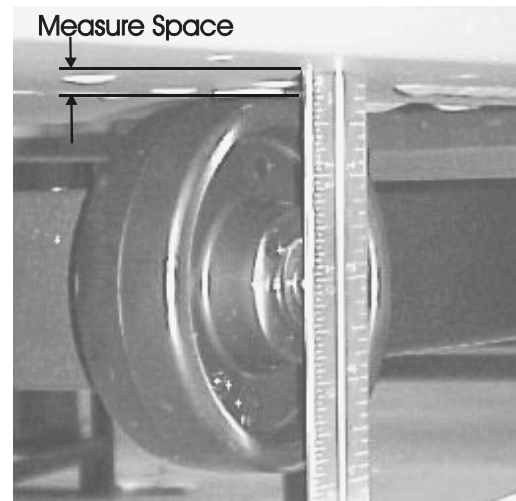# How To...Adjust the Lift Actuator

Special Service Tools Required: NONE

1. Verify that the home switch is functioning. Enter into Diagnostics (see Section 2). Select *Incline Manual*. A "0" should appear in the lower right corner of the Profile Window when activated. Also the Wax/Lift LED 4 and 5 will be lit when home switch is activated. If not, then proceed to next step.

2. Drive the Lift System down until the actuator's internal limit switch stops the lift function. Disconnect power from the treadmill.

3. Measure and record the space between the top of the lift wheels and bottom of the unit frame.

4. Turn the treadmill over on its side.

5. Remove the 3/8-16 nut and bolt from the Lift Arm Weldment.

6. Turn the actuator tube clockwise (in towards the motor) in half-turn increments to approximately equal the space measured in Step 3. One-half turn of the actuator tube shortens the operating length by 1/16". Make sure the bolt holes align.

Example: If the space between the top of the wheel and the bottom of the frame is 3/16", turn the actuator tube 1-1/2 turns clockwise (in towards the motor). If the space is 5/32", turn the actuator tube 1 turn clockwise.

<u>**IMPORTANT**</u>: **Be careful not to turn the actuator screw while turning the actuator tube.**

7. Install the Actuator tube back into the Lift Arm weldment and secure with nut and bolt.

8. Verify orientation of switch so that the terminal connector is facing toward the Frame Tag PCB. If backward, remove and reinstall to proper orientation as shown.

9. Turn the treadmill over and restore power.

10. Test the lift function in a user program. Note: If necessary, balance the unit and adjust striding belt tracking.
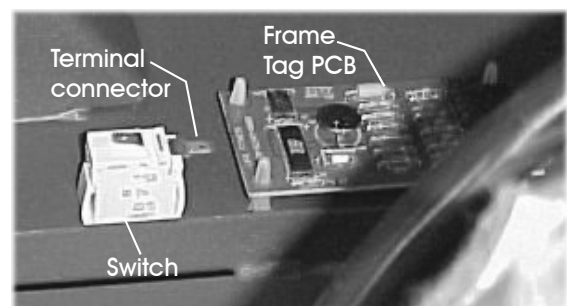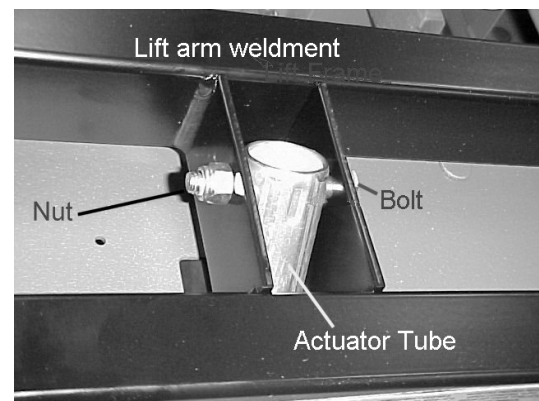
Measure Space

Lift arm weldment
Nut
Bolt
Actuator Tube

Terminal connector
Frame Tag PCB
Switch

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
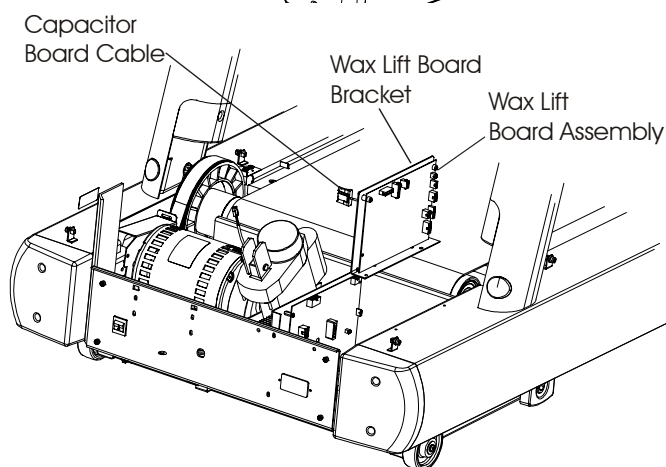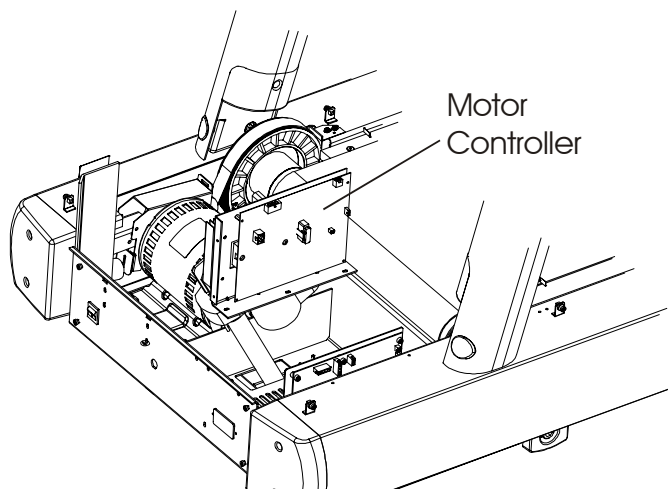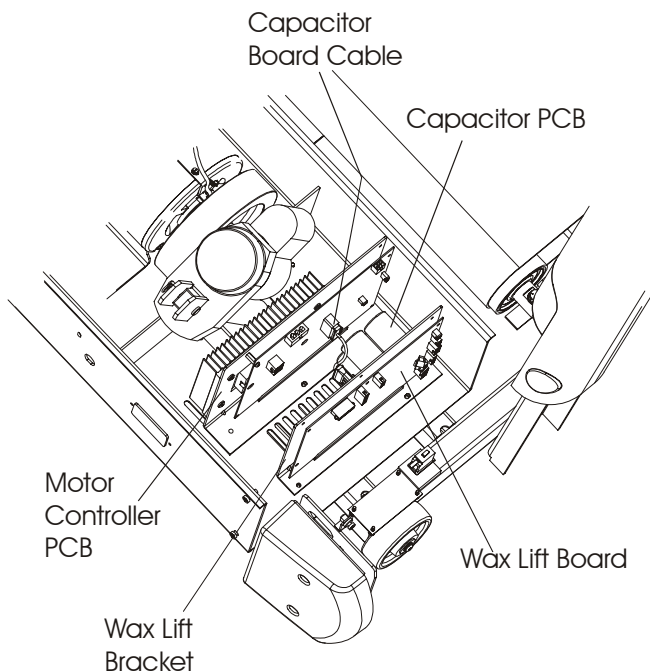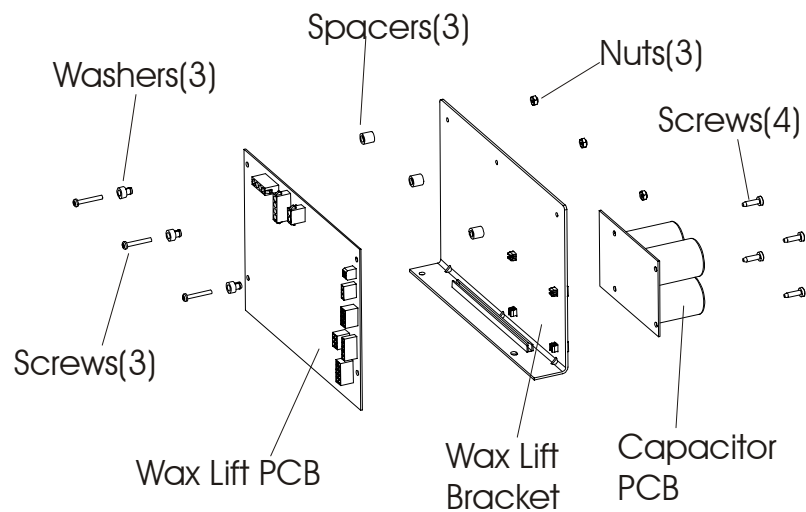## How To... Replace the Motor Controller Assembly, Wax Lift Assembly, and Capacitor PCB
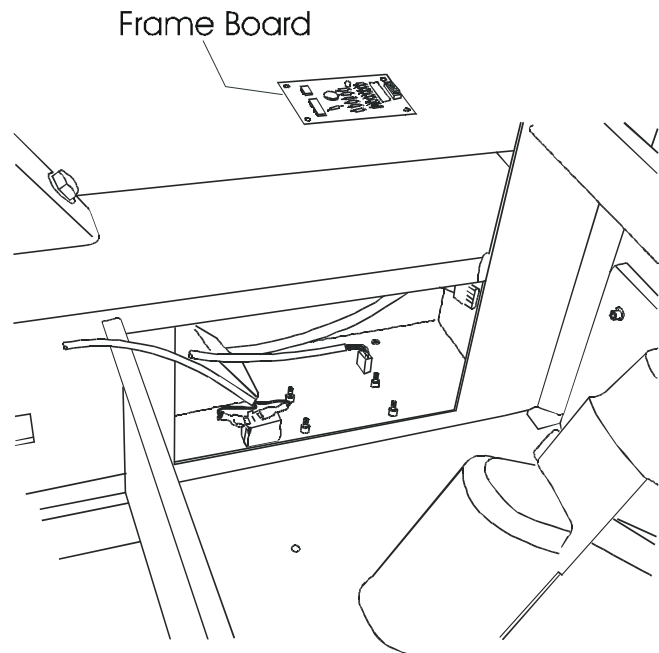
Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the Inside Upright Covers, the Front Cover, and the Motor Cover. See "How to…" in this section.

3. Depending on which is being replaced, disconnect the appropriate wiring from the Motor Controller Assembly or from the Wax Lift Assembly.

CAUTION! Before beginning the following steps, ALL LEDs on the Motor Controller MUST BE OUT.

4. **To remove the Motor Controller Assembly:** Disconnect the Capacitor Board Cable from the Motor Controller Assembly. Next remove a total of five mounting screws which secure the Motor Controller Assembly to the base of the Unit. Remove two screws in the front of the Unit and three at the base of the Unit, then lift out the Motor Controller Assembly.

5. **To remove the Wax Lift Assembly:** Disconnect the Capacitor Board Cable from the Motor Controller Assembly. Remove two screws at the base, and then lift it out.

Capacitor Board Cable

Capacitor PCB

Motor Controller PCB

Wax Lift Board

Wax Lift Bracket

Motor Controller

Capacitor Board Cable

Wax Lift Board Bracket

Wax Lift Board Assembly

Special Service Tools Required: NONE

6. With the Wax Lift Board Assembly out of the Unit, remove the attached Capacitor PCB from the Wax Lift Bracket for re-use. See the illustration showing exploded parts of the Wax Lift Board.

Note: If the Capacitor is physically damaged or smells burned, then replace it along with the Motor Controller Assembly.

7. Install New Motor Controller or Wax Lift Board Assembly in reverse order. Make sure to re-install the Capacitor Board back on the Wax Lift Bracket.

Note: Replace both the capacitor and power control board if they are damaged.

How To... Replace the Frame Tag Board

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the inside Upright Covers, Front Cover, and Motor Cover. See "How to…" in this section.

3. Remove the Wax Lift Assembly. See "How To…" in this section.

NOTE: In the illustration, a portion of the treadmill frame has been removed in order to show the frame tag board.

Wax Lift PCB

Motor Controller PCB
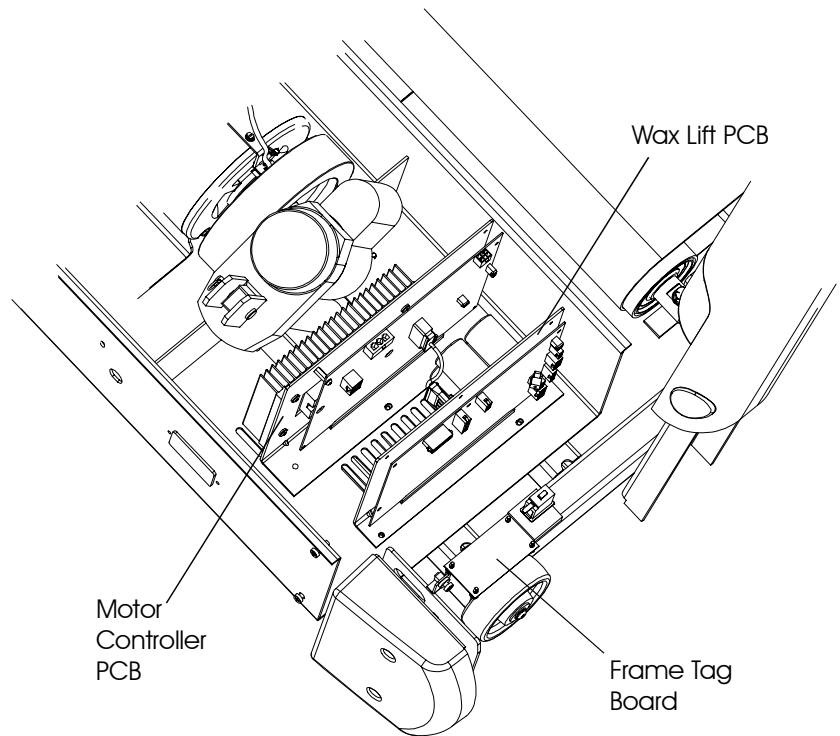
Frame Tag Board

4. Disconnect the electrical connector on the Frame Tag Board.

5. There are four Spring Clips, which hold the Frame Tag Board in place. Squeeze the Spring Clips to release the Frame Tag Board.

6. Remove the Frame Tag Board from out of the left side of the frame.

7. Install new Frame Tag Board onto same Spring Clips in reverse order.

Frame Board

How To... Replace the STOP Button/Switch

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch then unplug the line cord at the wall outlet.

Emergency Stop Magnet

STOP Button/ Switch

2. Remove eight screws from the Console Back.
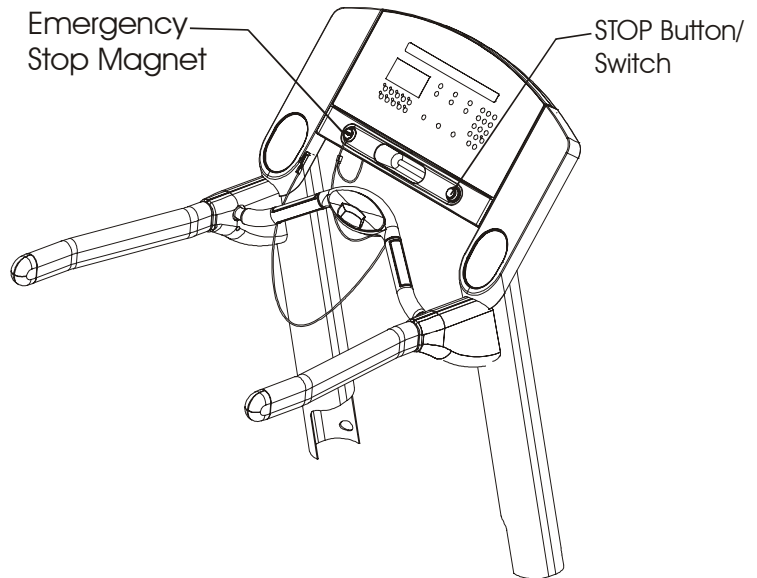
Console Back Screws(8)
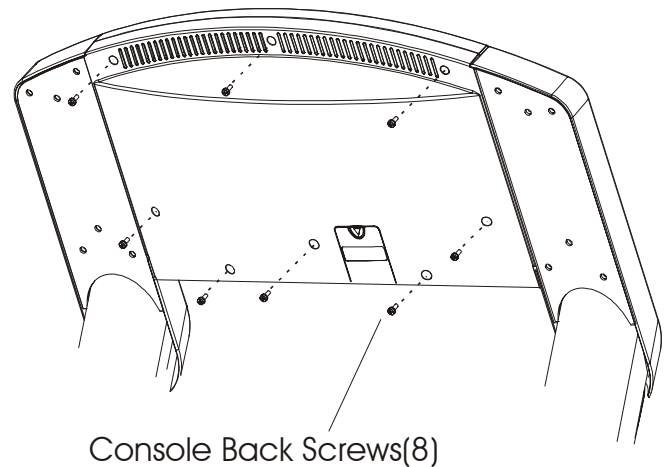
3. Lift off the Overlay Bezel Assembly.

4. Remove the Micro Switch (not shown), and then the Plastic Nut securing the STOP Button/Switch at the back of the Console Front and lift out the STOP Button/Switch.
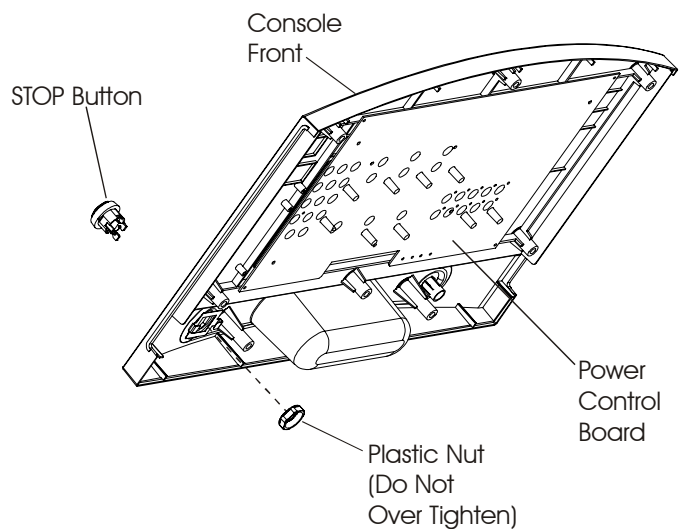
Console Front

STOP Button

Power Control Board

Plastic Nut (Do Not Over Tighten)

How To... Replace the STOP Button/Switch

Special Service Tools Required: NONE

5. Insert the Stop Button Switch through the opening in the front of the Bezel Assembly, and orient the Switch Body so the work "STOP" is readable from the face of the Bezel.

6. Install the Plastic Nut on to the threaded portion of the Switch Body with the flat side toward the back of the Bezel and tighten1/8 of a turn past hand tight. Do Not over tighten the Plastic Nut.

CAUTION: Over tightening the Plastic Nut may cause damage to the Switch Body or Bezel.
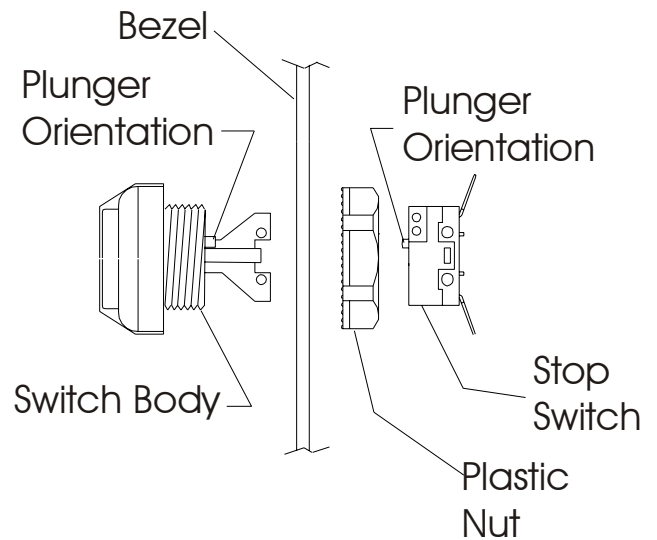
Explode Side View

7. Insert the Stop Switch into the STOP Button/Switch, and take special note to orient the two parts so the Switch Plungers make contact upon assembly.

Note: Verify that the plungers are making contact by pressing the STOP Button and visually ensuring they make contact with each other.

8. Reconnect the wiring being careful not to bend or break the connecting tabs.

9. Refer to Diagnostics Section to Log Maintenance Repair of the Stop Switch.
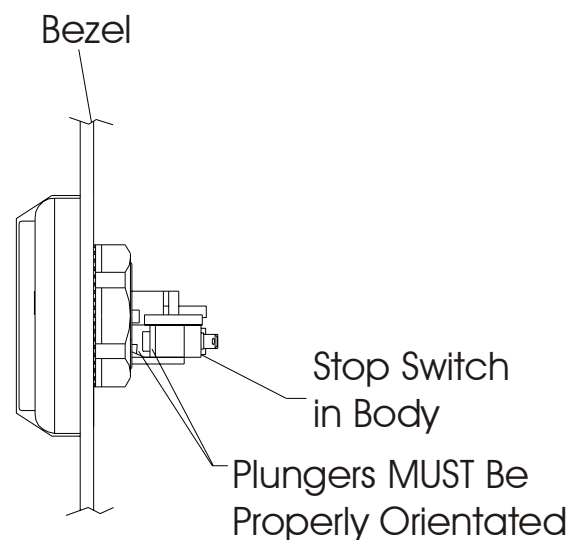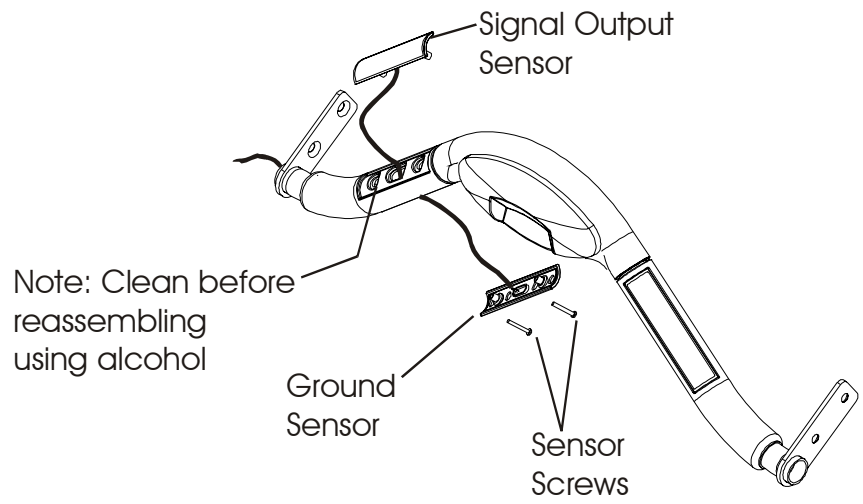
Assembled View

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
How To... Replace the Smart Stop Circuit Board

Special Service Tools Required: NONE

Note: The Circuit Board and Foam Backing are part of the Smart Stop Cover Assembly. The illustration below shows an exploded view of these components for clarity purposes only.

1. Turn the unit power OFF at the switch then unplug the line cord at the wall outlet.

2. Remove two screws from the back of the ERGO Bar securing the Smart Stop Cover Assembly, and then lift off the Smart Stop Cover just enough to disconnect the 4-Pin Connector from the Smart Stop Circuit Board.

3. Remove and discard the Smart Stop Assembly.

4. Install new Smart Stop Assembly in reverse order.
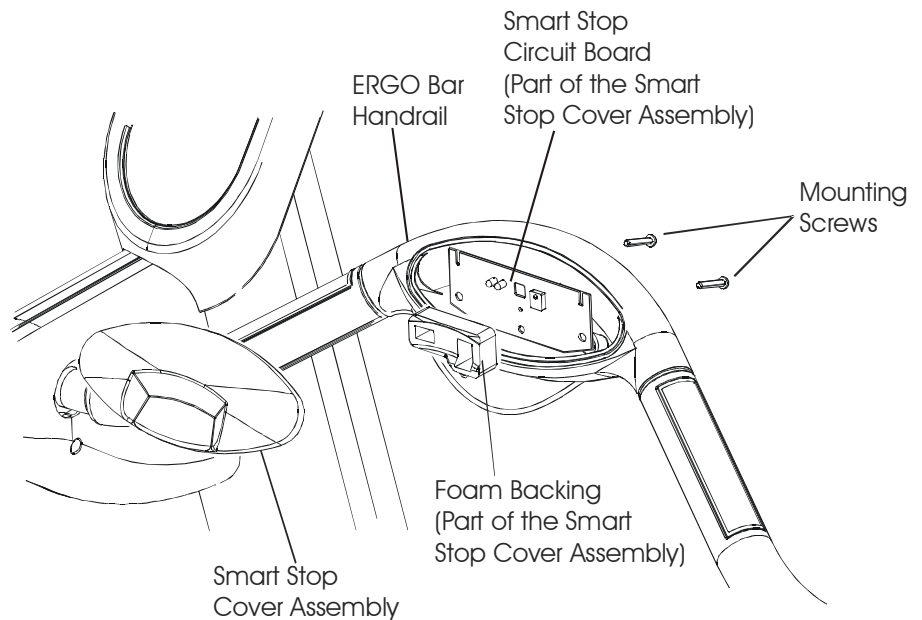
Smart Stop
Circuit Board
(Part of the Smart
Stop Cover Assembly)

ERGO Bar
Handrail

Mounting
Screws

Foam Backing
(Part of the Smart
Stop Cover Assembly)

Smart Stop
Cover Assembly

How To... Replace the Heart Rate Sensors

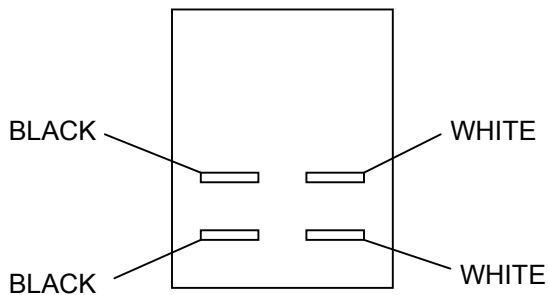**Special Service Tools Required: NONE**

1. Turn the unit power OFF at the switch then unplug the line cord at the wall outlet.

2. Remove two screws securing the Heart Rate Sensors.

3. Disconnect the wire (black or green) from the Ground Sensor and the wire (red or white) from the Signal Output Sensor.

4. Discard the old Sensor.

5. Install new sensors in reverse order, and tighten with screws 5-7 in lbs.

6. Repeat the above steps for the remaining Heart Rate Sensor.

Signal Output Sensor

Note: Clean before reassembling using alcohol

Ground Sensor

Sensor Screws

How To... Replace the ON/OFF Switch

Special Service Tools Required: NONE

1. Turn the unit power OFF at ON/OFF Power Switch, and then unplug line cord at the wall outlet.

2. Remove the motor cover. See "How To…" in this section.

3. Tag and identify the wiring on switch before disconnecting.

4. Squeeze the tabs on the sides of the switch and remove through front of unit.

5. Install new switch in reverse order. Use the diagram below to aid in re-wiring.
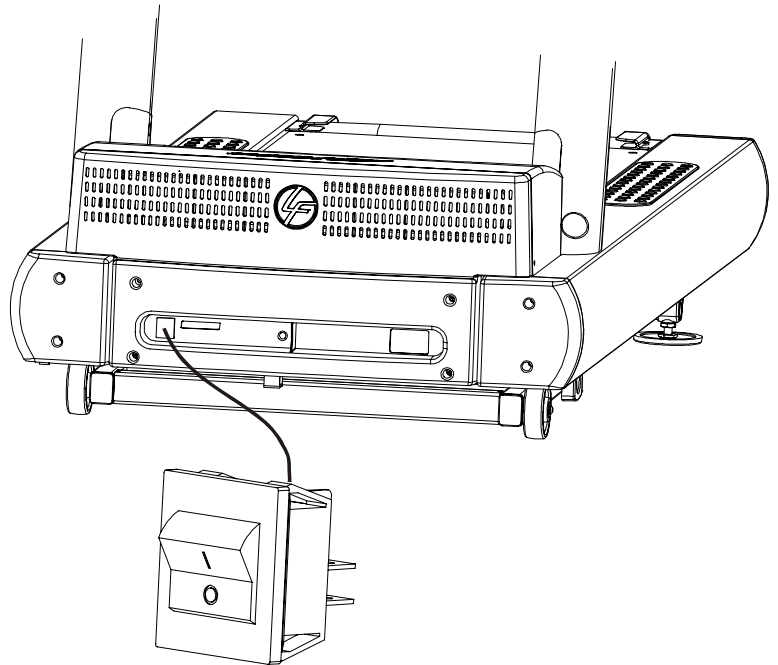
ON/OFF Power Switch

Terminal Connections (Rear View)

BLACK

WHITE

BLACK

WHITE

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
How To... Replace the Accessory Cup Holders

Special Service Tools Required: NONE

1. Remove four corner screws from the back of each Cup Holder.

Right Cup Holder Screws(4)

Left Cup Holder Screws(4)
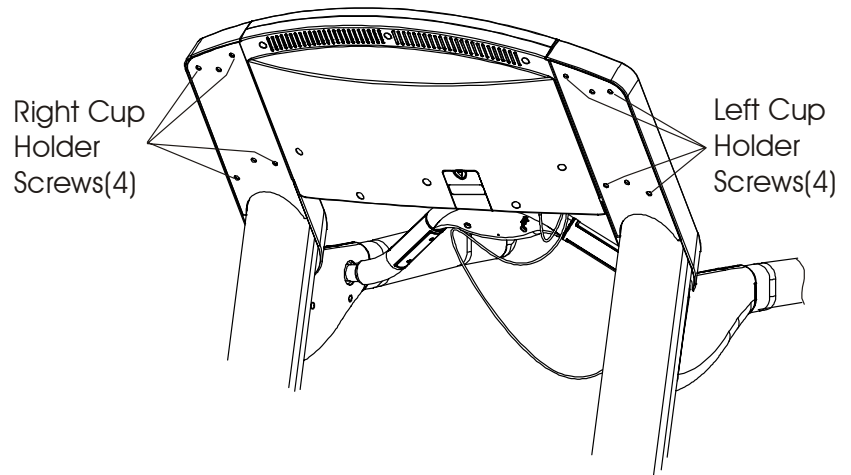
2. Lift the Cup Holders up and out of the Uprights being careful of the Heart Rate and Smart Stop Cables.

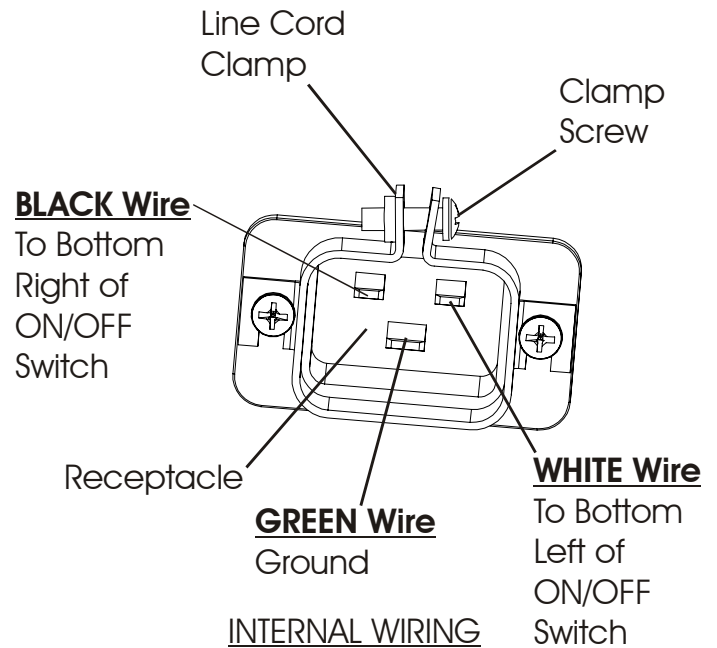3. Install the new Cup Holders being careful not to pinch cables, and then secure in place with the mounting screws.
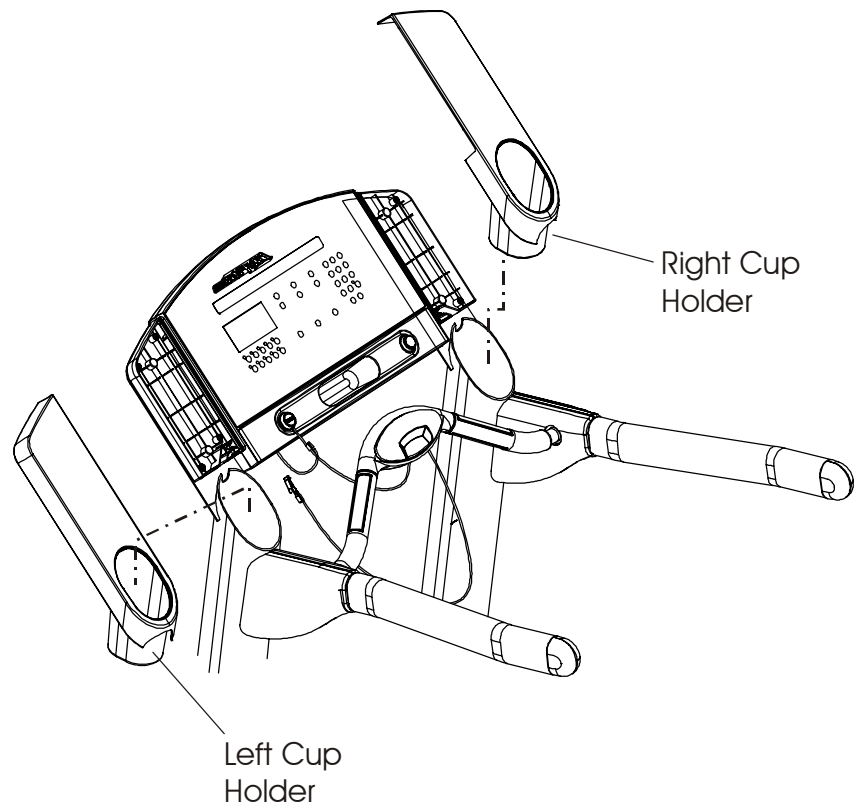
Right Cup Holder

Left Cup Holder

How To... Replace the Line Cord

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the Line Cord at the wall outlet.

2. Remove the Access Cover on the right side of the Frame, and then tilt the unit over on its right side.

3. Remove the Clamp Screw securing the Line Cord.

4. Remove the Line Cord and discard.

5. Install the new Line Cord and secure in place with the Clamp.

6. Upright the unit and reinstall the Access Cover.

Line Cord Clamp

Clamp Screw

BLACK Wire To Bottom Right of ON/OFF Switch

Receptacle

GREEN Wire Ground

WHITE Wire To Bottom Left of ON/OFF Switch

INTERNAL WIRING

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
How To... Replace the Line Filter

Special Service Tools Required: NONE

Note: If equipped with a Transformer, it must be removed first in order to access the Line Filter below it. Before removing the Transformer, tag and identify all wires.

Note: The Line Filter is located directly in front of the Drive Motor, and if equipped, just below the Transformer. Before removing the Line Filter, tag and identify all wires.

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove Inside Upright Covers, Front Cover, and Motor Cover. See "How To…" in this section.

3. If equipped with a Transformer, it must be removed first in order to access the Line Filter below it. Before removing the Transformer, tag and identify all wires.

4. Tag and identify all wires connected to the Line Filter, which is located in front of the Drive Motor. With all wires properly identified, disconnect them from the Line Filter.

5. Remove two screws securing the Line Filter at the base of the unit, and then lift out the Line Filter.

6. Discard the old Line Filter, and install a new Line Filter in reverse order. See Line Filter Wiring Schematic in Section 4.
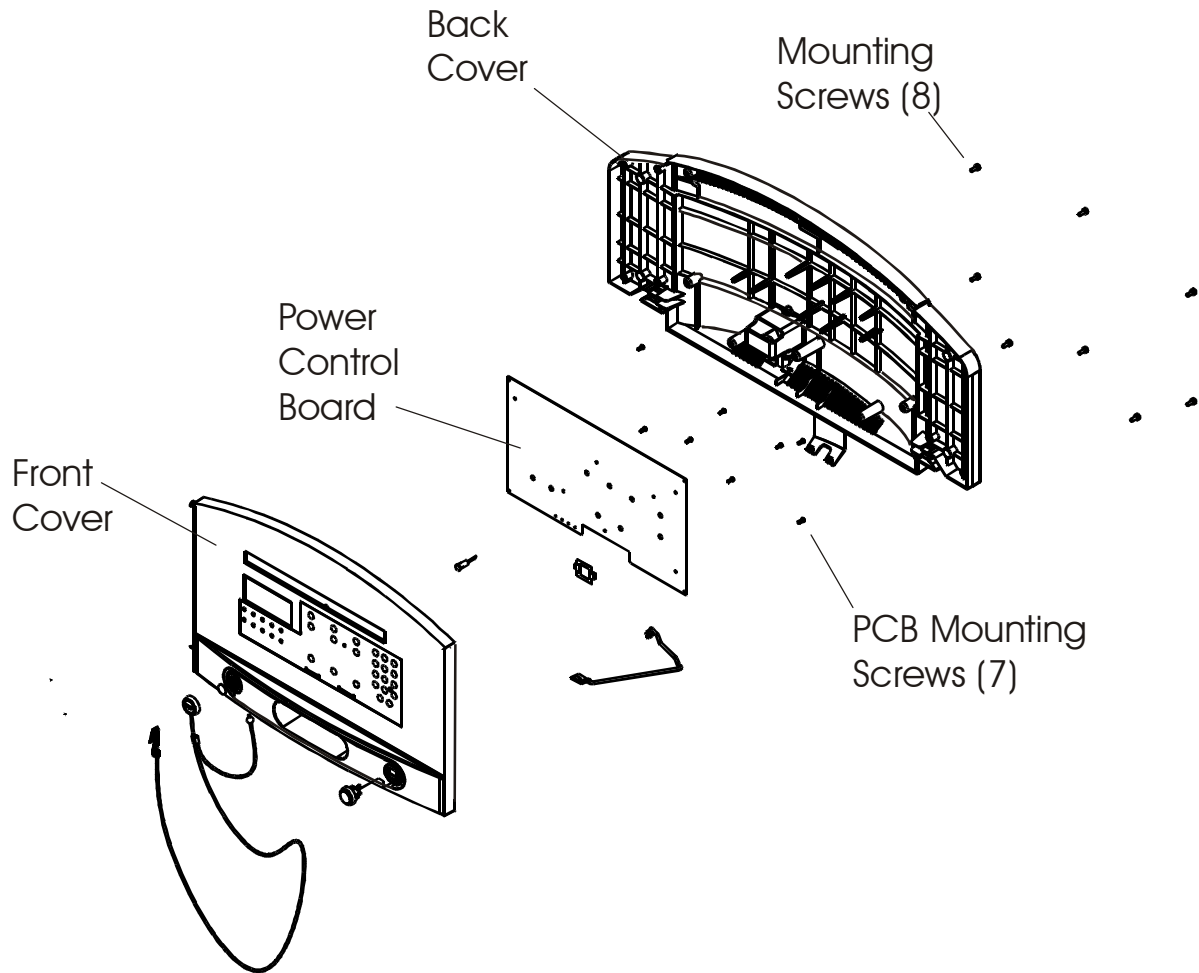
NOTE: Do not over-tighten screws.
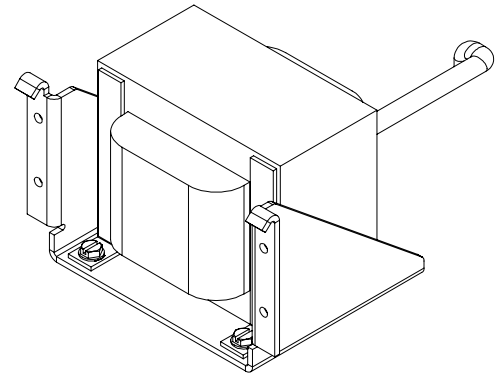
Transformer
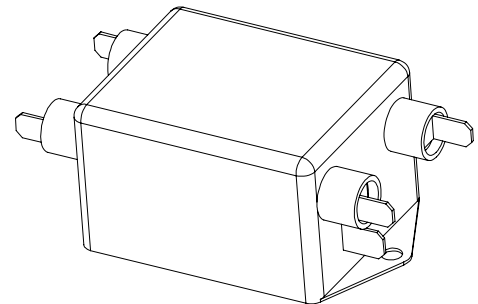
Line Filter

NONE Special Service Tools Required: NONE

Back
Cover

Mounting
Screws (8)

Power
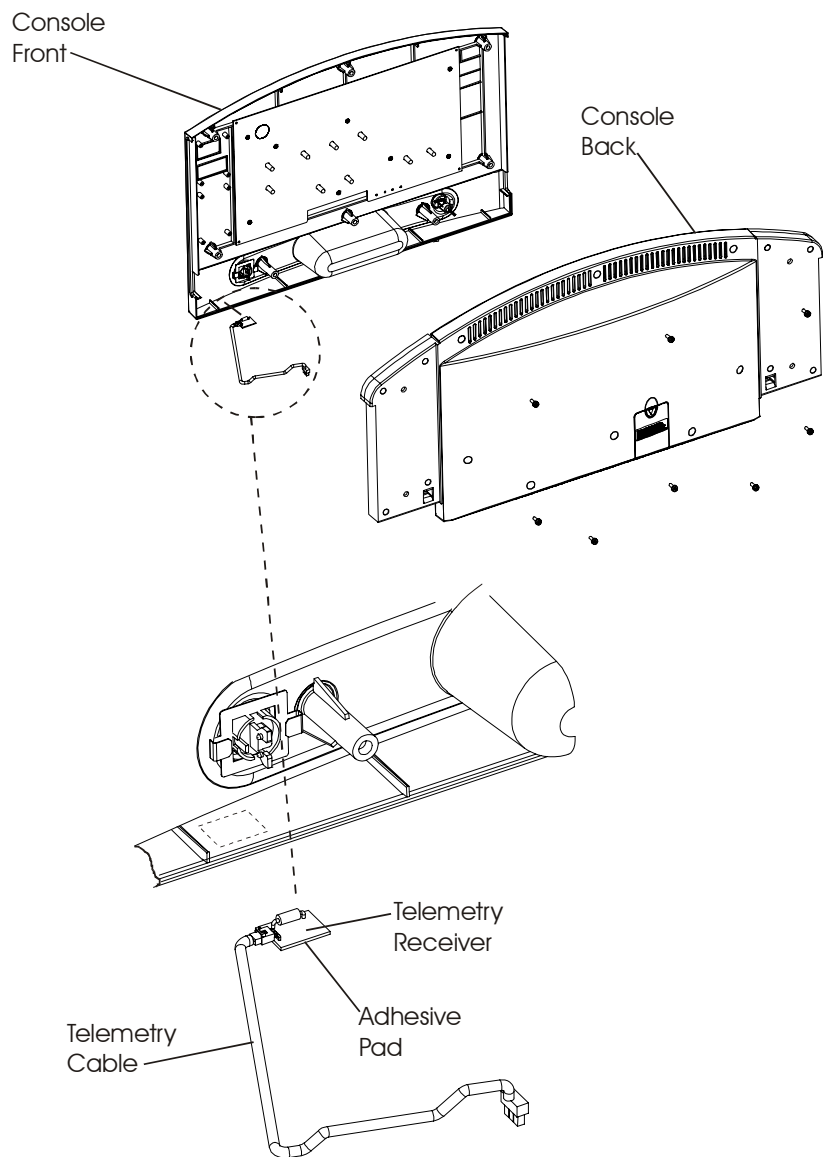Control
Board

Front
Cover

PCB Mounting
Screws (7)

1.   Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2.   Remove eight screws from the Back Cover of the Console.

3.   Lift off the Front Cover. Disconnect all the Cables and Ribbon Connectors from the PCB Board.

4.   Remove eight screws from the PCB, and then remove the PCB. Send the PCB back to Life Fitness.

5.   Install new PCB in reverse order. DO NOT over tighten mounting screws.

6.   Reconnect the Cables and Ribbon Connectors to the PCB.

7.   Install the back cover. DO NOT over tighten screws.

8.   Refer to Diagnostics Section to Log Maintenance Repair of the Display Console Control Panel.

How To... Replace the Telemetry Receiver

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch then unplug the line cord at the wall outlet.

2. Remove eight screws from the Console Back. See "How To…" in this section.

3. Lift off the Console Front and disconnect necessary wiring.

4. Remove the Telemetry Receiver and Cable from the inside left corner of the Console Front, which is held in place with an adhesive pad

5. Install new Telemetry Receiver with new Adhesive Pad in reverse order.

6. Re-install the Console Front to the Console Back, making sure all connectors are firmly installed.

Console Front

Console Back

Telemetry Receiver

Adhesive Pad

Telemetry Cable

How To... Replace the Main Wire Harness

Special Service Tools Required: NONE

1. Turn the unit power OFF at the switch, and then unplug the line cord at the wall outlet.

2. Remove the Inside Upright Covers, Front Cover, and Motor Cover. See "How To…" in this section.

3. Remove the Console Assembly. See "How To…" in this section.

4. Disconnect the Main Wiring Harness from the Motor Controller, and then pull out the Main Wiring Harness.

5. Install new Main Wiring Harness through the top of the Left Upright (Upright), and connect to the Motor Controller.

6. Reconnect to the Console Assembly.

7. Install Covers.

Main Wiring Harness

HR & Smart Stop Cables
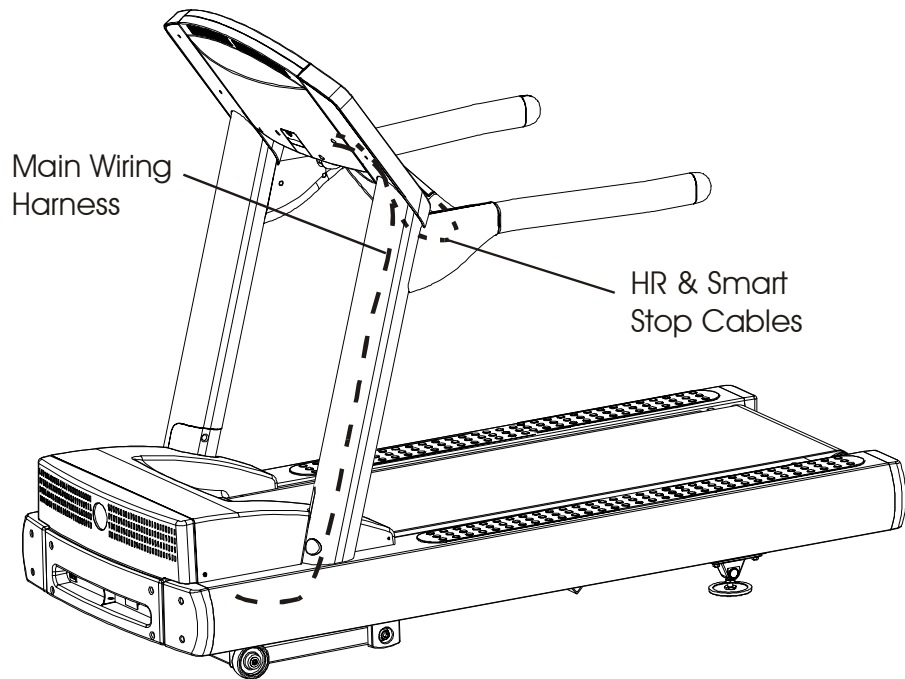
How To... Replace the Console Assembly

Special Service Tools Required: NONE

Note: To disconnect the wiring leading inside the Console
Assembly, the Console Assembly must be split.

1. Turn the unit power OFF at the switch then unplug the line
   cord at the wall outlet.

2. Remove six mounting screws from the back of each Cup
   Holder.

3. Lift the Cup Holders up and out of the Uprights being careful
   of the Heart Rate and Smart Stop Cables.

4. Remove eight screws from the Console Back and lift out the
   Console Front while disconnecting electrical connectors
   from the Console Power Control Board (PCB).

5. Install new Console Assembly in reverse order.

6. Install the Cup Holders back into the Uprights being careful of the electrical cabling.

7. Refer to Diagnostics Sections to Log Maintenance Repair of the Display Console Control Panel.
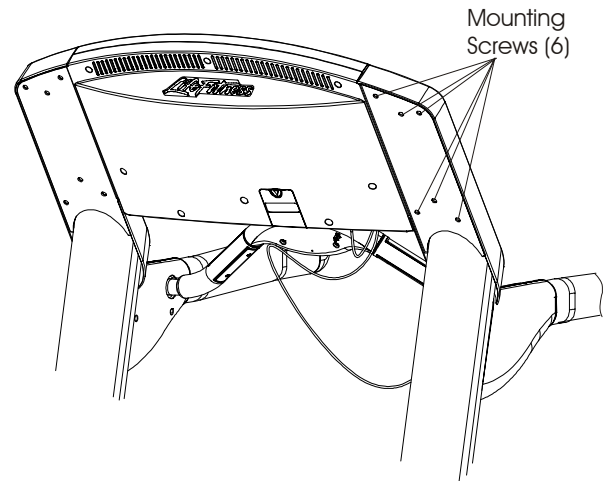
Mounting
Screws (6)

How To... Replace the Overlay Bezel

Special Service Tools Required: NONE

Note: The Overlay Bezel is part of the Console Front Assembly, however, the Console PC Board is not. Therefore, the Console PC Board must be removed from the back of the Console Front.

1. Turn the unit power OFF at the switch, then unplug the line cord at the wall outlet.

2. Remove eight screws from the Console Back.

Console Back Screws(8)
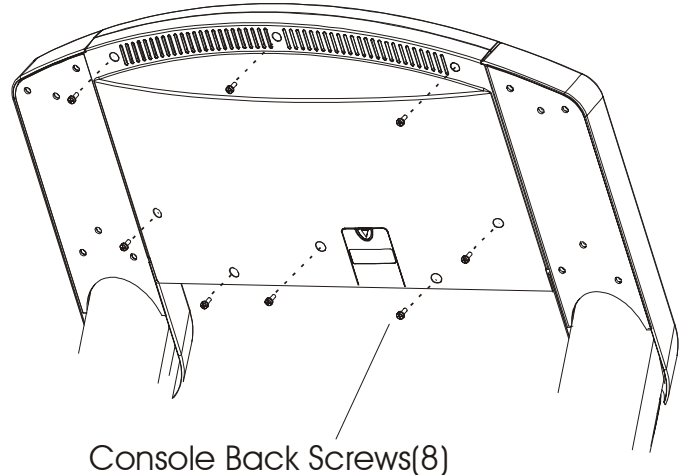
3. Lift the Console Front off just enough to disconnect the electrical connectors from the Console PC Board.

5. Remove the screws securing the Console PC Board to the back of the Console Front, and then disconnect the Ribbon Cables from the Console PC Board. Now set the PC Board aside for re-use on the new Overlay Bezel.

6. Install new Overlay Bezel Assembly in reverse order. Make sure that all connectors and ribbon cables are securely fastened to the Console PC Board.

7. Refer to Diagnostics Section to Log Maintenance Repair of the Overlay Bezel.

Console PC Board/
Overlay Bezel Assembly

Console PC Board
(Remove from back
of Console Front)
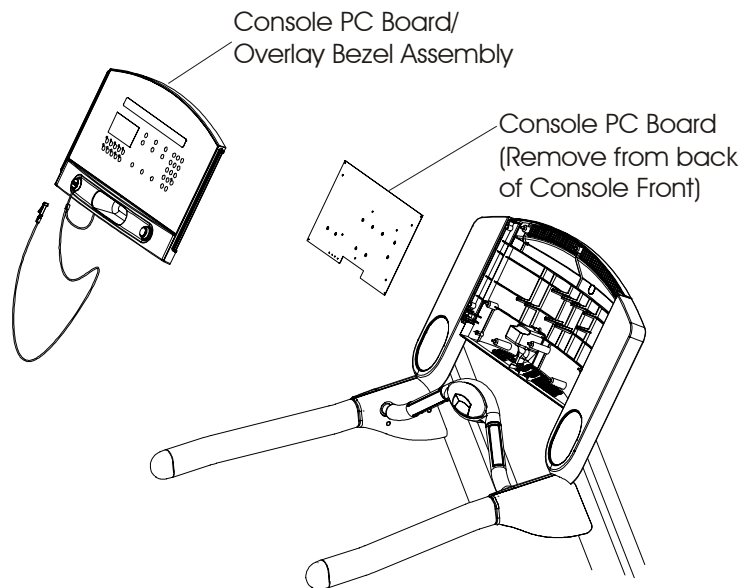
How To... Replace the ERGO Bar, Handrail, and Uprights

Special Service Tools Required: NONE

Note: The Uprights MUST be loosened so that they can be spread apart enough to remove the ERGO Bar. Also, the Console Assembly MUST BE REMOVED.

1. Turn the unit power OFF at the switch then unplug the line cord at the wall outlet.

2. Remove the Inside Upright Covers, Motor Cover, and Front Cover. See "How to…" in this section.

3. Remove the Plug at the front of each Upright, and then remove the Mounting Bolt under each Plug.

4. Loosen the Inside Mounting Bolts on each Upright.

5. Remove the Console Assembly. See "How To…" in this section.

6. Remove the Left and Right Outer Handrail Shrouds.

7. Move the Inner Shrouds towards the center of the ERGO Bar.

8. Remove the Left and Right Mounting Bolts securing the ERGO Bar from the Handrails.

9. Separate the Uprights enough to remove the ERGO Bar along with the Heart Rate and Smart Stop Cables.

10. If necessary, replace the Handrails. Notice that the Handrail ends curve outward.

11. Remove the bolts securing the Uprights, and lift the Uprights out from the frame supports.

12. If necessary, install new Uprights leaving all the mounting bolts loose.

13. If installing new Handrails, make sure the curved ends face outward.

14. Install the new ERGO Bar Assembly being careful not to pinch the Smart Stop Cable or Heart Rate Cable during installation.

15. Install the Console Assembly in reverse order, making sure to route Cables through the channel guides in the Console Back Cover.

16. After all components are positioned properly, then proceed to tighten all loose hardware.
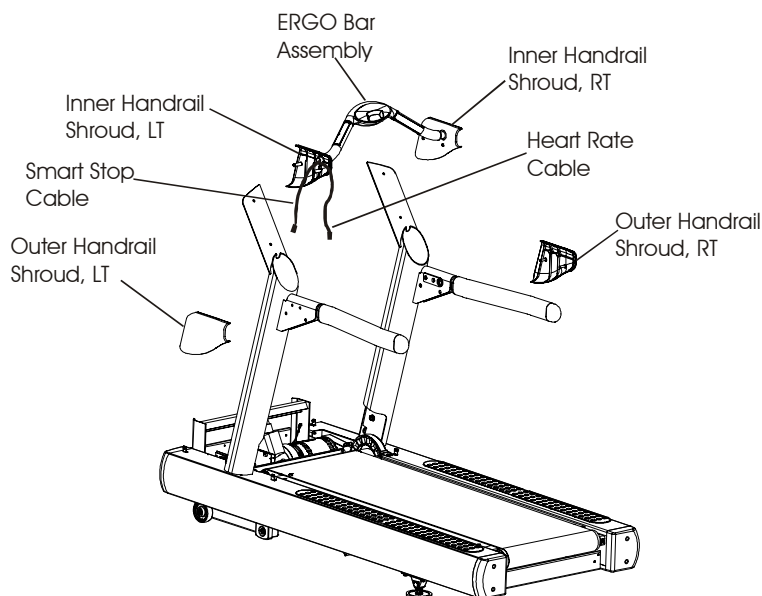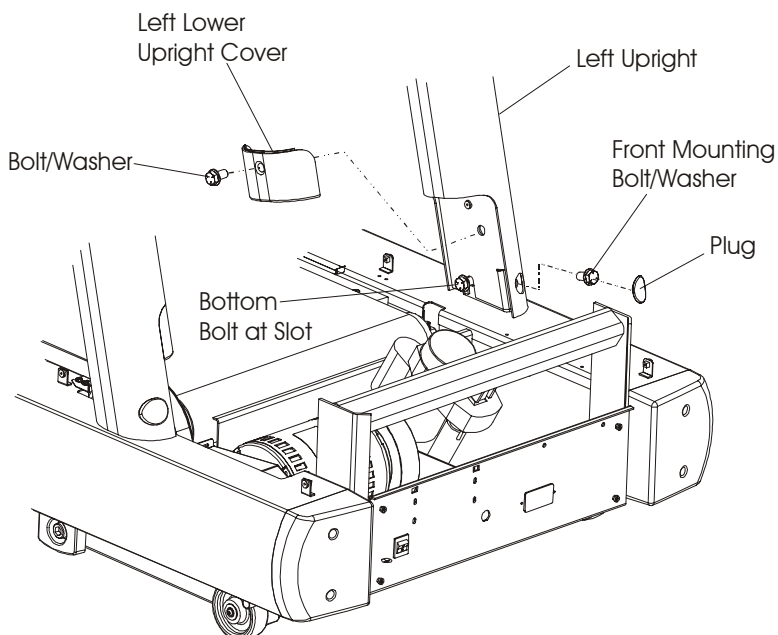
Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
How To... Replace the Leveler Assembly

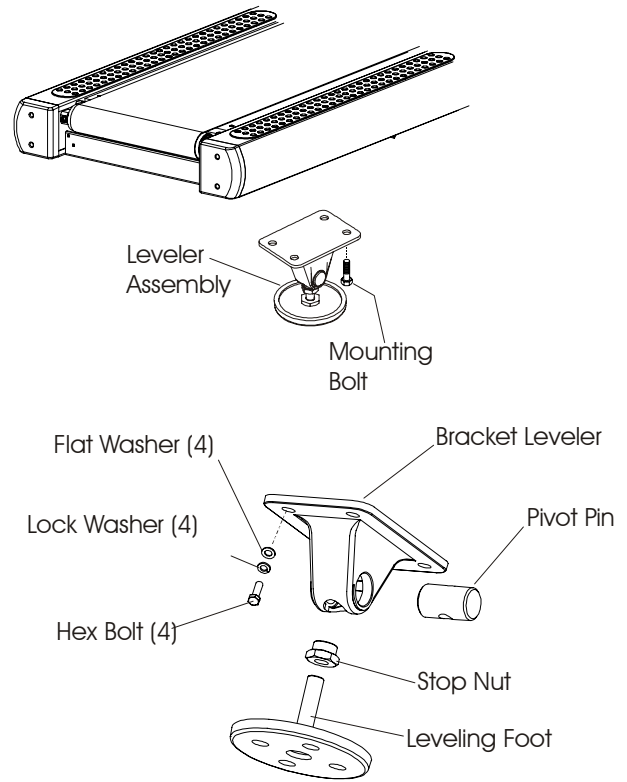**Special Service Tools Required: NONE**

WARNING! MAKE CERTAIN THAT TREADMILL IS PROPERLY SUPPORTED BEFORE REPLACING AND INSTALLING NEW LEVELER ASSEMBLY.

1. Turn the unit power OFF at the ON/OFF Switch, and then unplug the line cord at the wall outlet.

1. Lift treadmill up just enough to allow removal of leveler assembly, and then support with suitable blocks.

2. Remove the four leveler mounting bolts and hardware.

3. Install new leveler assembly in reverse order of removal.

NOTE: Mounting holes in the leveler bracket are of a non-symmetrical pattern, and therefore can only fit the holes in the bottom of the frame one way.

4. Level the unit by turning the leveler foot until the leveler firmly contacts the floor.

5. When unit is level, tighten the stop nut. Make certain the stop nut is properly seated against the pivot pin.

   NOTE: It's important that unit is leveled before using. An unleveled machine can cause the striding belt to drift to one side.

Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
LCD Integrated Console Service Review

Special Service Tools Required: NONE

NOTE: The following pages provide service procedures for servicing the LCD Integrated Console. While the Console Housings may differ between the various products, the internal components, which make up the Console, are identical. Use the exploded view below to help identify parts and component location during service.
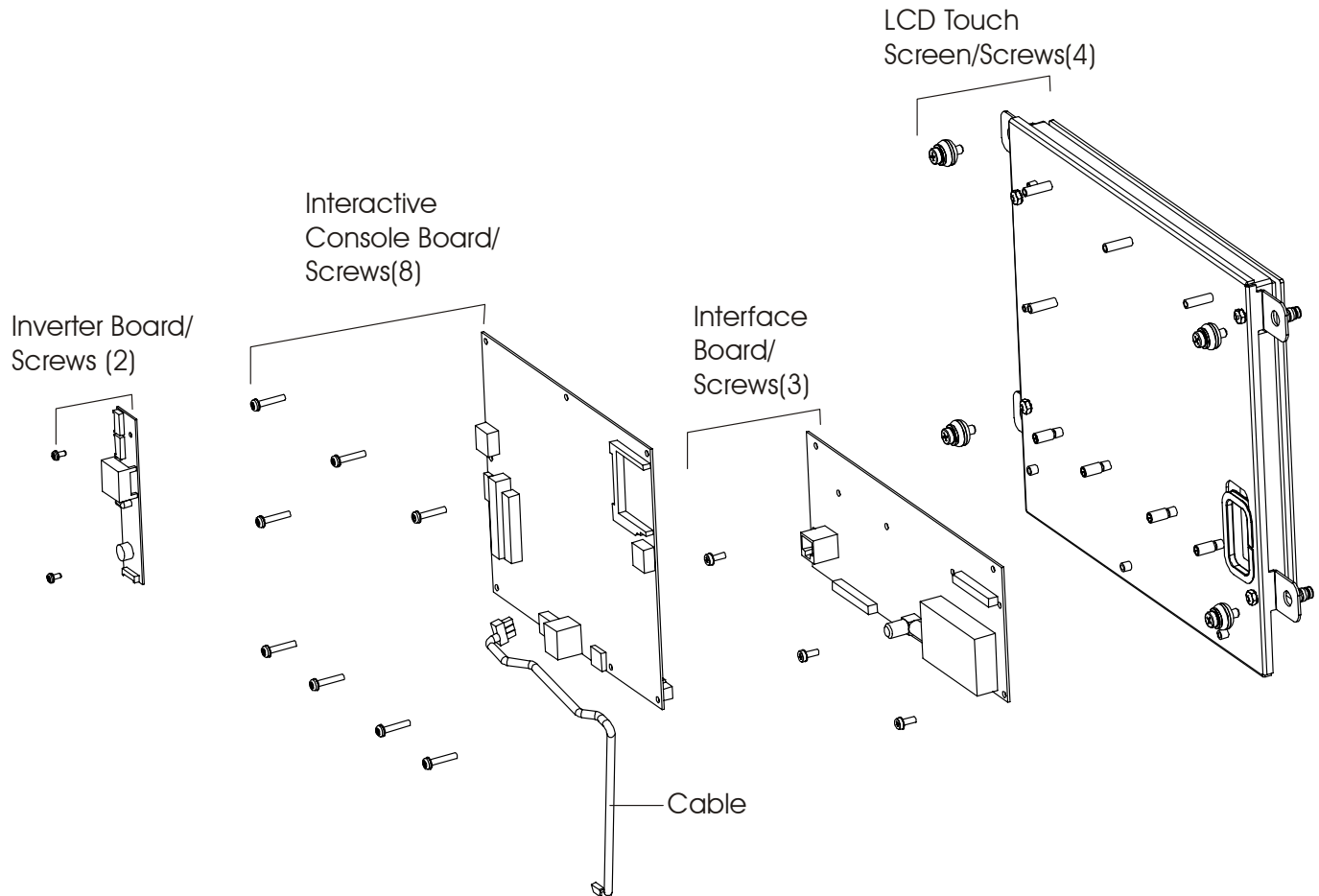
LCD Touch
Screen/Screws(4)

Interactive
Console Board/
Screws(8)

Interface
Board/
Screws(3)

Inverter Board/
Screws (2)

Cable

How To... Replace the Headphone Jack

Special Service Tools Required: NONE

Note: For clarity purposes some of the treadmill parts are shown removed from the Unit, which is not required to replace the Headphone Jack.

1. At the bottom of the Console remove the Phillip Screw securing the Headphone Jack Assembly and then remove the Headphone Jack.

2. Unplug the attached cable.

3. Install new Headphone Jack reverse order.

Head Phone Jack

Screw
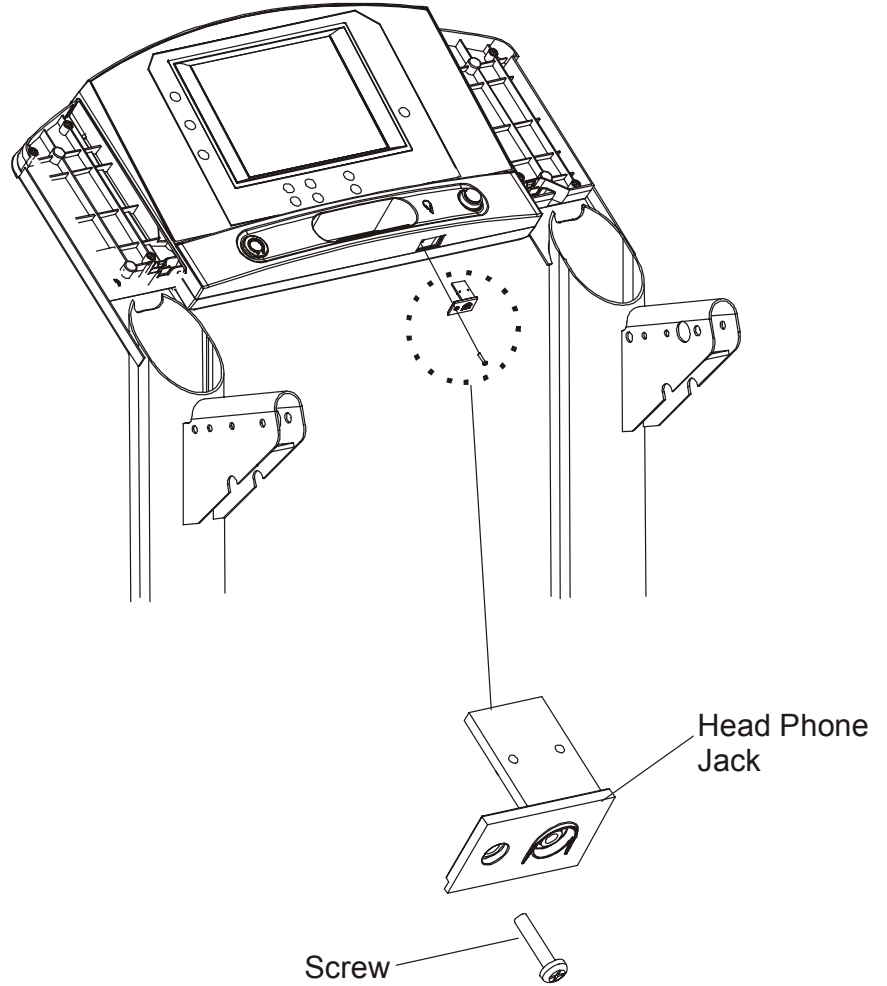
Life Fitness Model 97Te, 95Te, 97Ti, 95Ti and 93T Arctic Silver Treadmills
How To... Replace the Inverter, Single Computer & Interface Boards

Special Service Tools Required: NONE

Note: The following steps cover replacement of all boards attached to the back of the LCD Touch Screen Assembly. Use the illustrations on this page to aid in board replacement.
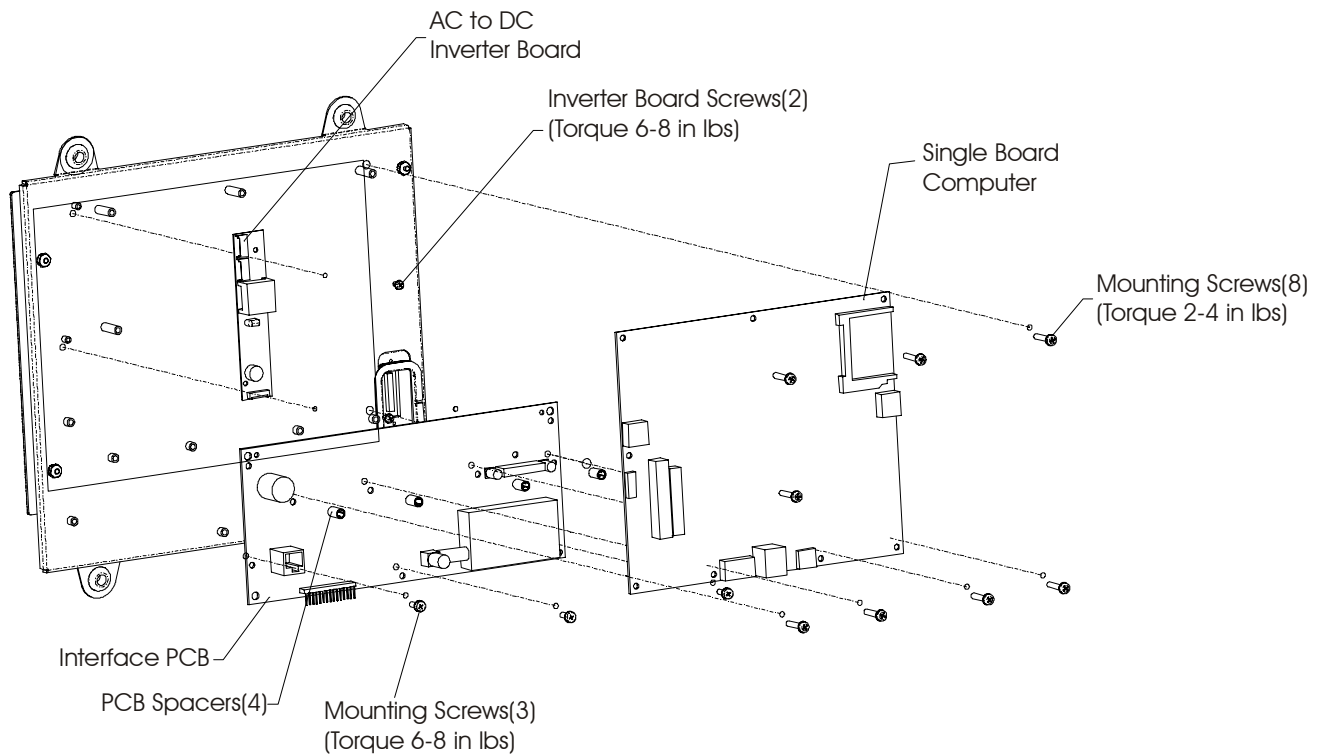
Inverter Board

1. Disconnect the Pink/White Wires from the two Backlight Connectors and the four Yellow Wires from the Inverter Board.
2. Remove two Inverter Board Screws and lift off the Inverter Board.

Single Board Computer

1. Disconnect the 5-Pin Touch Screen Communication Ribbon Cable and the 41-Pin LCD Communication Ribbon Cable.
2. Remove the Mounting Screws securing the Single Board Computer. The Single Board Computer remains engaged into a 24-Pin Connector Receptacle, which is located between two Connector Pins on the Interface Board. Carefully wiggle the Single Board Computer up and out of the Interface Board Connector Receptacle and Connector Pins.

Interface Board

Note: The Single Board Computer must be removed first.

1. Remove the Mounting Screws securing the Interface Board and then remove it.

2. Replace circuit boards as required and then install in reverse order.

How To... Replace the Touch Screen Assembly

Special Service Tools Required: NONE

Mounting Bracket

LCD/Touch Screen Assembly

Mounting Screws(4)

Mounting Nuts(4)

Overlay Bezel Assembly
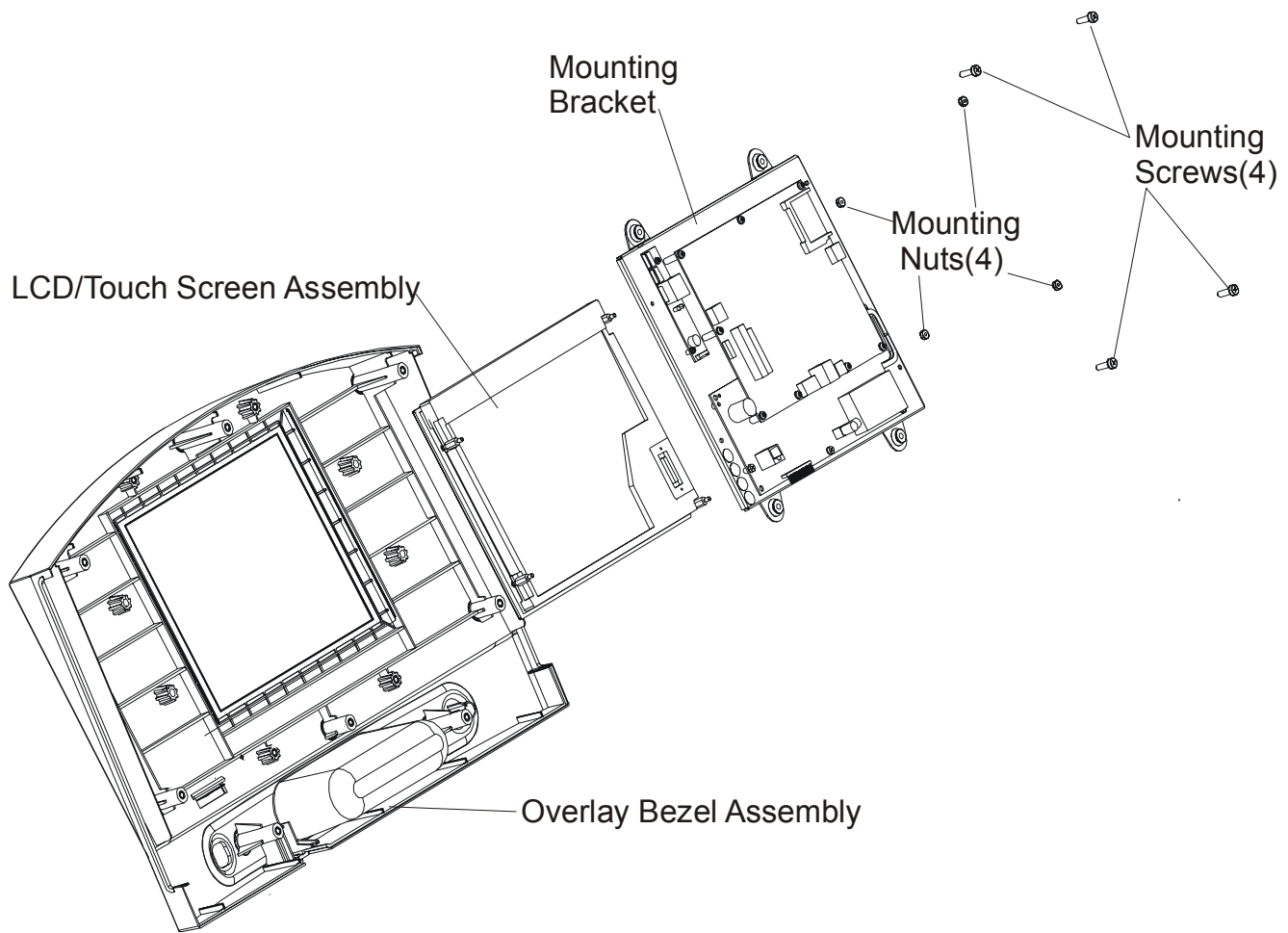
1. Remove eight Mounting Screws from the Back Cover of the Console. Lift the front half of the Console up enough to make appropriate electrical disconnects, and then lift off the Console.

2. Remove four Mounting Screws with Bushings that secure the LCD/Touch Screen assembly to the Overlay Bezel. Assembly.

3. Remove Four mounting nuts securing the LCD/Touch Screen assembly to the metal bracket

4. Remove the LCD/Touch Screen assembly from the Console.

5. Install new Screen in reverse order.

NOTES

SECTION 4

ELECTRONIC OVERVIEW
AND
WIRING BLOCK DIAGRAM

NOTES

Functional Description

The Display Console PCB is an intelligent display and keypad interface. It works in conjunction with the Wax/Lift Board, Motor Controller and Frame Tag Module. The console board reads the keypad input for user commands, refreshes the status LEDs, data display, profile display matrix. The LifePulse circuitry reads analog voltages from the user hands and converts it into Digital signal for Lifepulse heart rate. The Console contains two RJ45 (CSAFE) connectors to provide 8Volts .4 amp DC and C-Safe network interface.
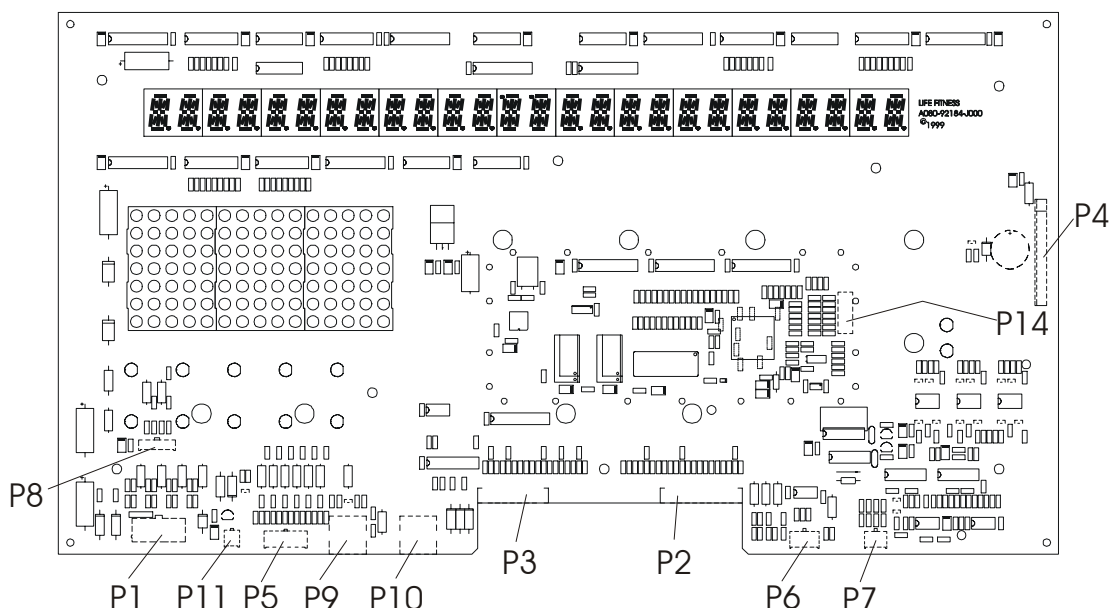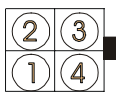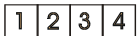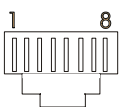

Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 10 pin connector, which connects to the Wax/Lift PCB		1	GND - ground
		2	GND - ground
		3	+8VDC - LEDs
		4	+8VDC - LEDs
		5	Reed Sense - Relay No. 1
		6	TXD – transmit data
		7	RXD – data received
		8	Bus_Req (bus request)
		9	+12VDC – emergency stop switch
		10	Relay Enable
P2 is a 12 pin ribbon connector, which connects to the Display Console Overlay		1	ESD ground
		2	Switch strobe 0
		3	Switch return 0
		4	Switch strobe 1
		5	Switch return 1
		6	Switch strobe 2
		7	Switch return 2
		8	Switch strobe 3
		9	Switch return 3
		10	Switch strobe 4
		11	Switch return 4
		12	ESD ground

Connector	Location	Pin	Functional Description
P3 is a 10 pin ribbon connector, which connects to the Display Console Overlay		1	ESD ground
		2	Switch return 6
		3	Switch strobe 2
		4	Switch return 3
		5	Switch strobe 1
		6	Switch strobe 4
		7	Switch return 5
		8	Switch return 1
		9	Switch return 7
		10	ESD ground
P4 is an 18 pin connector, which connects to the Remote Console PCB 97Ti		1	D15 - 'DP' Segment Data
		2	D14 - 'G' Segment Data
		3	D13 - 'F' Segment Data
		4	D12 - 'E' Segment Data
		5	D11 - 'D' Segment Data
		6	D10 - 'C' Segment Data
		7	D9 - 'B' Segment Data
		8	D8 - 'A' Segment Data
		9	ST5 - Digit Strobe 5
		10	ST6 - Digit Strobe 6
		11	ST7 - Digit Strobe 7
		12	Key
		13	ST8 - Digit Strobe 8
		14	ST9 - Digit Strobe 9
		15	ST10 - Digit Strobe 10
		16	ST11 - Digit Strobe 11
		17	+8VDC (Not used)
		18	Ground (Not used)
P5 is a 10 pin connector, which connects to the Serial Peripheral Interface Serial Communications Port		1	MISO - master-in slave-out
		2	MOSI - master-out slave-in
		3	SCK - serial clock
		4	N/U - not use
		5	GND - ground
		6	PCS1 - peripheral chip select 1
		7	PCS2 - peripheral chip select 2
		8	PCS3 - peripheral chip select 3
		9	Open Collector Output
		10	+8VDC
P6 is a 6 pin connector, which connects to the Polar Receiver and at the end of the Session Switch		1	+5VDC
		2	Polar signal
		3	Ground
		4	Stop Switch +
		5	Stop Switch -
		6	N/U

Connector	Location	Pin	Functional Description
P7 is a 4 pin connector, which connects to the LifePulse Electrodes		1	Left +
		2	Left -
		3	Right -
		4	Right +
P8 is a 4 pin connector, which connects to the Smart Stop Module		1	Smart Stop Signal
		2	Smart Stop Enable
		3	+8VDC
		4	Ground
P9 and P10 are 8 pin connectors, which connect to the CSAFE and Cardio Theater Interface		1	N/U - not used
		2	N/U - not used
		3	Receive Data
		4	Transmit Data
		5	+8 VDC
		6	CTS
		7	Ground
		8	N/U - not used
P11 is a 2 pin connector, which connects to the Emergency Stop Switch		1	Switch (-)
		2	Switch +12VDC
P14 is a 10 pin connector, which connects to the Background Debug Mode Signals		1	/DS
		2	/BERR
		3	Ground
		4	/BKPT /DSCLK
		5	Ground
		6	FREEZE/QUOT
		7	/RESET
		8	IPIPE1/DS1
		9	+5 VDC
		10	IPIPE0/DS0

FUNCTIONAL DESCRIPTION

The Motor Controller PCB is a single phase AC input PWM variable frequency three (3) phase AC output motor controller. Specifically the controller input is configured as a full wave bridge for 230 volt AC input, and as a voltage doubler for 120 volt AC input. The resultant DC bus voltage is processed through a microprocessor controlled six switch DC to AC inverter. The output is three phase power with pulse width modulation of both voltage and frequency.

NOTE: The motor controller design utilizes a 'hot' supply. This means the entire board will be at elevated potentials relative to earth ground any time the circuit is active. All measurements should be conducted with isolated equipment. Additionally there is considerable energy stored within the circuitry for up to 90 seconds after power is removed from the circuit. Personnel working with this equipment should be trained and adequate precautions should be used whenever working with this equipment.
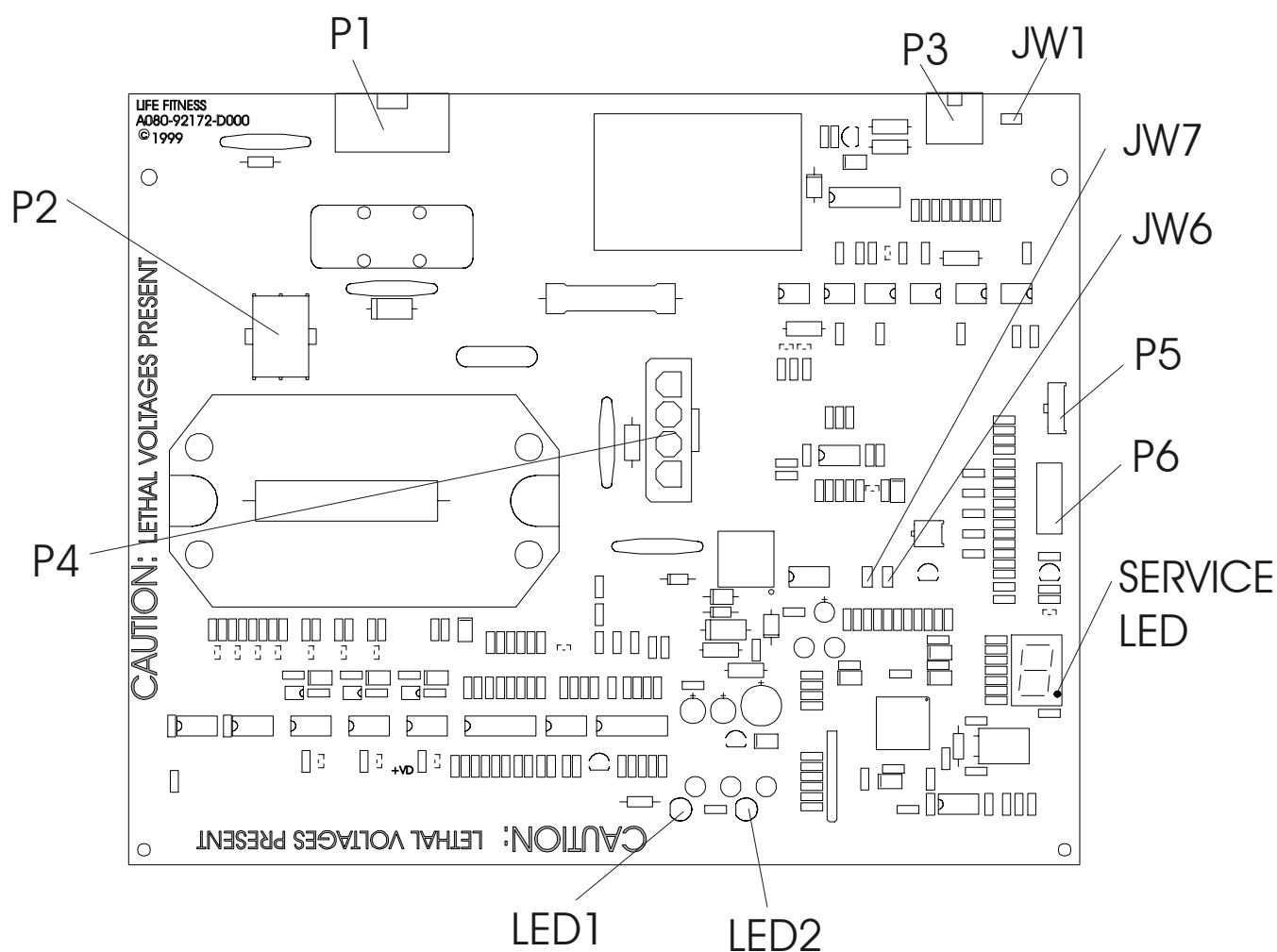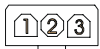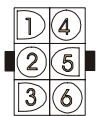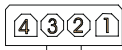
LEDs, Test Points, and Jumpers

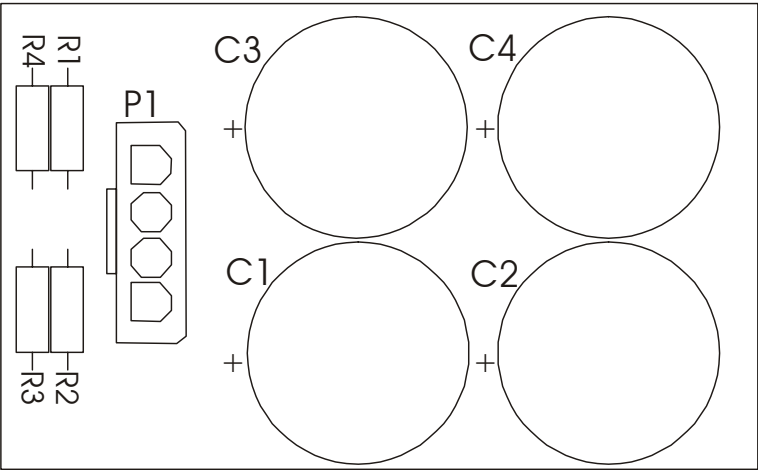| Description	Location	Function
Service LED	LED1	5 VDC
	LED2	14 VDC
	LED3	Service LED
Jumper (JW)	JW1	IN	Serial interface (If removed Error message "System Configured Two Wire" appears.)
	JW6	OUT	Clears continuous error messages and displays EPPROM data
	JW7	IN	Determines the wave form applied to the motor

Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 3 pin connector, which connects to the AC inputs	①②③	1	120/230 VAC input line
		2	120 VAC neutral/230Vac return
		3	Earth ground connection
P2 is a 6 pin connector, which connects to the Output Motor	①④ ②⑤ ③⑥	1	Earth ground connection.
		2	Motor phase W
		3	Motor phase V
		4	Motor phase U
		5	Power connection: Motor thermal cutout
		6	Power connection: Motor thermal cutout
P3 is a 6 pin connector, which connects to the Control Inputs	1 ②③ ④⑤⑥	1	8VDC (Supplied by wax/lift board)
		2	Ground (Console circuit ground)
		3	Emergency stop switch
		4	Bus request
		5	Data receive
		6	Data transmit
P4 is a 4 pin connector, which connects to the Power Factor Controller or Capacitor Board	④③②①	1	Volt positive (PFC in)
		2	Ground for motor controller circuit
		3	Voltage doubler neutral - no connection for 230VAC or PFC
		4	Volt positive (PFC out)
P5 is a 3 pin connector, which connects to the RPM Input	① ② ③	1	Ground for Motor Controller circuit
		2	5VDC (VCC)
		3	Speed sense input
P6 is a 10 pin connector, which connects to the Diagnostic Header Inputs. Note: Pins 1 and 6 are located closest to P5 on the PCB.	①⑥ ②⑦ ③⑧ ④⑨ ⑤⑩	1	Serial output
		2	Serial input
		3	Secure input to 68HC08 processor
		4	Ground for Motor Controller circuit
		5	Bi-directional serial line
		6	PTC4 input
		7	Programming voltage input
		8	DC voltage (+VD)
		9	5VDC (VCC)
		10	5VDC (VCC)

ELECTRONIC OVERVIEW – Cap Board

Functional Description

The capacitor board provides the bus capacitance for a motor control board. A mid point of the capacitor bank is provided to allow for a voltage doubler configuration. Connection between output of AC input bridge rectifier and DC buss is made through the CAP board. Discharge resistance is also provided on this board.
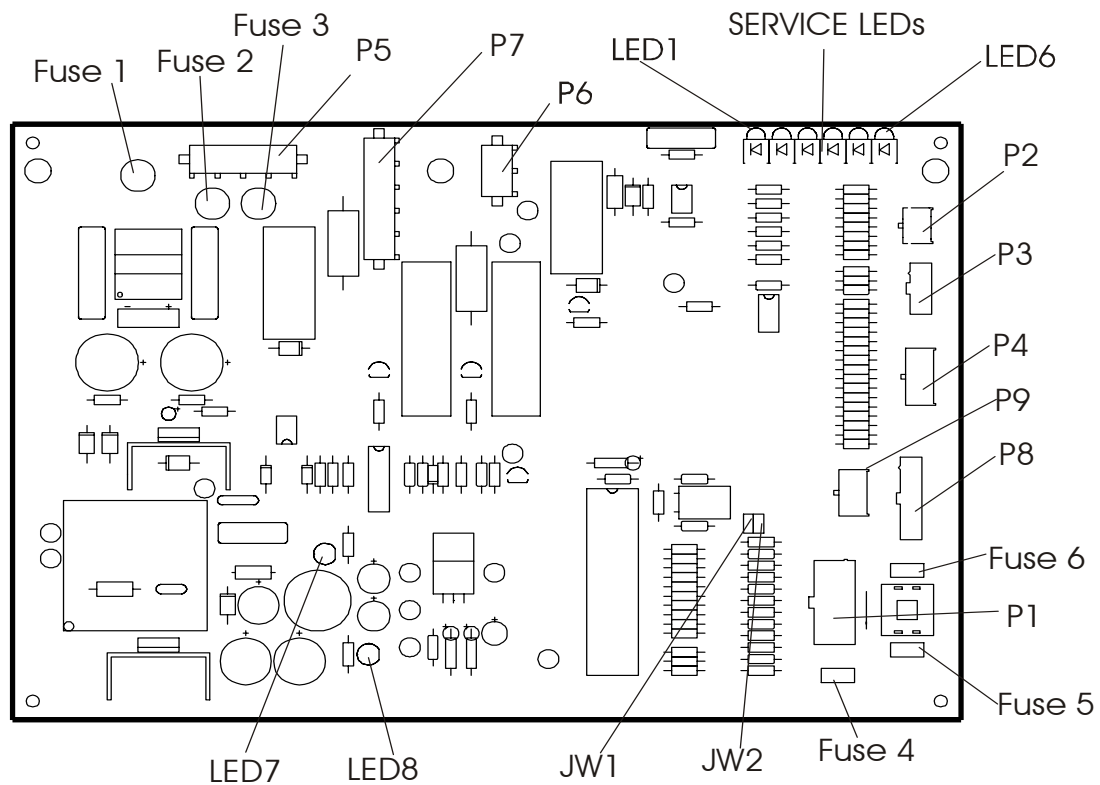
Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 4 pin connector that connects to Motor Controller		1	Input AC rectifier output
		2	DC buss return
		3	DC buss mid point
		4	DC buss

LEDs, Relays, Test Points, and Jumpers

Functional Description

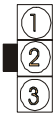The Wax /Lift /Power Supply Board acts as a junction board which interfaces with the:
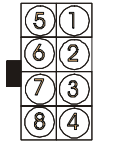
- Display Console
- Frame Tag
- Home Switch TR93/95
  0% Switch and Negative Switch TR97
- Lift Motor
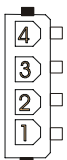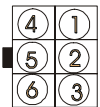- Power Supply

Description	Location	Function	
Service LED	LED1	Flashes when the control processor and the main processor are running. (Console board)	
	LED2	ON when lift motor is going up	
	LED3	ON when lift motor is going down	
	LED4	ON when 0% switch is closed	4 & 5 on when at 0% on 93Ti & 95Ti only.
	LED5	ON when bottom limit switch is engaged	
	LED6	Flashes when Control UP is running	
	LED7	Green indicates that +12VDC output is ON	
	LED8	Red indicates that +8VDC output is ON	
FUSES	FUSE 1	2 Amp 120VAC supply for low voltage power supply	
	FUSE 2	4 Amp 120VAC supply power for lift motor	
	FUSE 3	4 Amp 120VAC supply power for lift motor	
	FUSE 4	0.5 Amp 12VDC supply to console Emergency stop switch	
	FUSE 5	1 Amp 8 VDC (Supply power to console electronics, Smart stop, and CSAFE (RJ45 connector))	
	FUSE 6	1 Amp 8VDC (Supply to console CPU)	
Relay Switch	Relay 1 and 2	Drives Lift Motor	
	Relay 3 (12VDC coil)	NOT USED	
	Relay 4 (12VDC coil):	Relay 4 supplies AC input to the Wax/Lift Circuit	
Jumper (JW)	JW1	One(1) wire system	
	JW2	Two(2) wire system	

Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 10 pin connector, which connects to the Console		1	Ground
		2	Ground
		3	+8VDC
		4	+8VDC
		5	NC
		6	RXD
		7	TXD
		8	BUS request
		9	+12VDC
		10	Pin relay
P2 is a 4 pin connector, which connects to the Lift Motor		1	0 position
		2	Ground
		3	Bottom
		4	Ground
P3 is a 3 pin connector is not used		1	N/U - not used
		2	N/U - not used
		3	N/U - not used
P4 is a 8 pin connector, which connects to the Frame Tag PCB		1	+5VDC (VCC)
		2	Ground
		3	MISO
		4	MOSI
		5	SCK
		6	NC
		7	CS
		8	CE

Connector	Location	Pin	Functional Description
P5 is a 3 pin connector, which connects to the AC Input		1	Hot (120 VAC)
		2	Neutral
		3	Ground
P6 is a 2 pin connector is not used.		1	Neutral
		2	Hot (120 VAC)
P7 is a 4 pin connector, which connects to the Lift Motor		1	Down
		2	Hot (120 VAC)
		3	Up
		4	Ground
P8 is a 5 pin connector, which connects to the Life Link Board		1	+8VDC
		2	Ground
		3	Bus request
		4	Receive data
		5	Transmit data
P9 is a 6 pin connector, which connects to the Motor Control Board		1	+8VDC
		2	Ground
		3	Pin Relay
		4	Bus Request
		5	Receive data
		6	Transmit data

ELECTRONIC OVERVIEW – SMART STOP PCB

Functional Description (97Ti/e and 95Ti/e)

The Smart Stop PCB is designed to sense the presence of a user on the treadmill deck and pause the treadmill if a user is not detected. An infrared light is transmitted twice a second and then is reflected by the user. The light is then detected by the receiver module. The treadmill console controls the Enable pulse and reads the output of the receiver module.
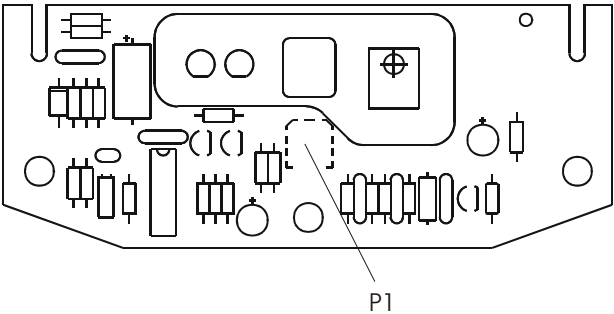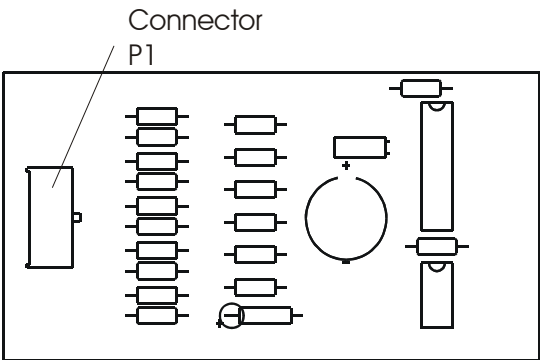
P1

Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 4 pin connector, which connects to the Display PCB		1	Ground
		2	+8VDC
		3	Enable Input Active
		4	U_Detect Output Pulsed Active Low

Functional Description

The Frame Tag board identifies the unit track from date of manufacture and provides a place to record information significant to the history of the unit.
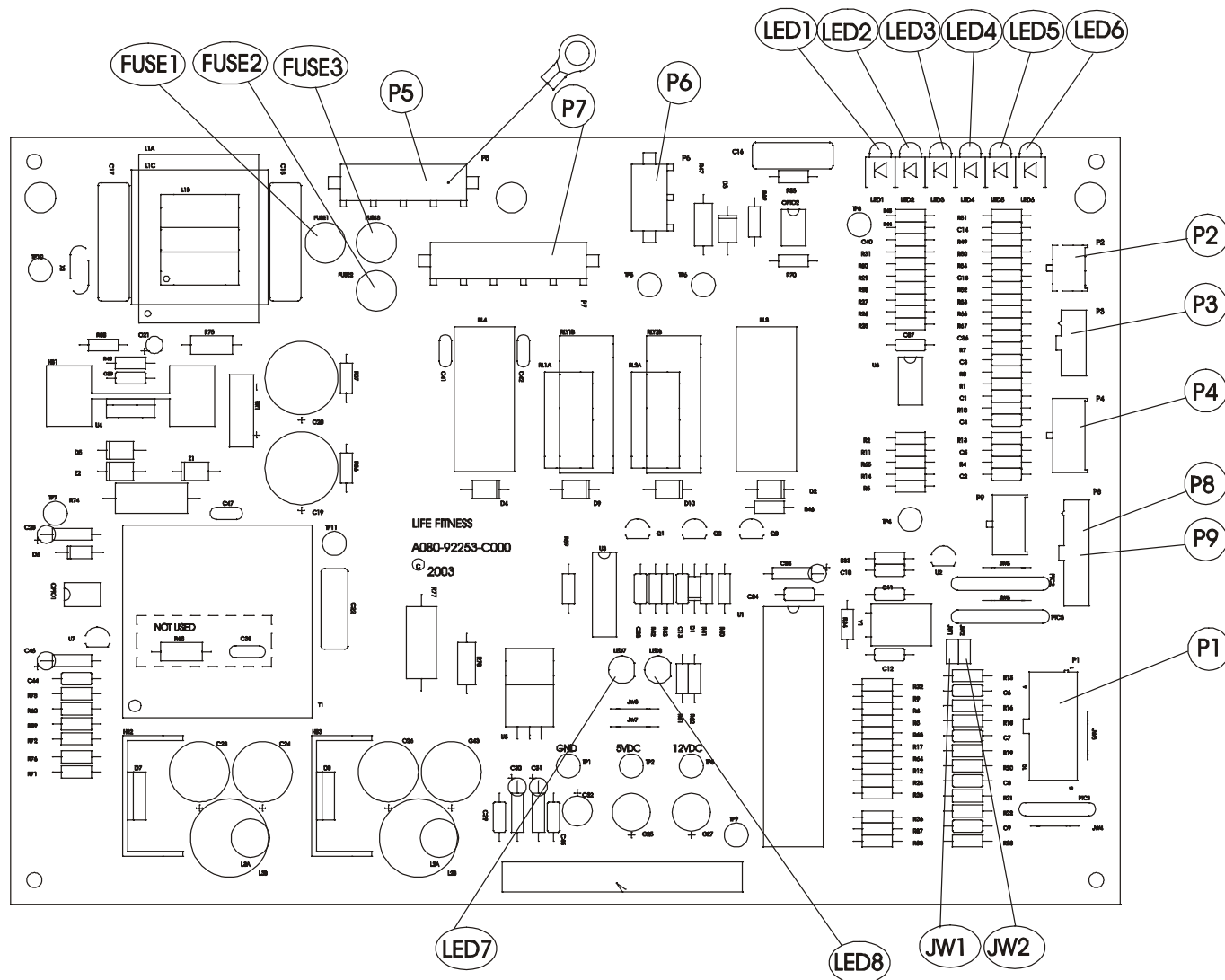
Connector P1

Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is an 8 pin connector, which connects to the Frame Tag PCB		1	VCC - +5VDC
		2	GND - Ground
		3	MISO - Master-in slave-out
		4	MISI - Master-in slave-in
		5	SCK - Serial clock
		6	NU - Not used
		7	CS - Chip select
		8	CE - Chip enabled

LEDs, Relays, Test Points, and Jumpers

Functional Description
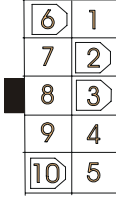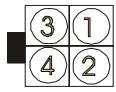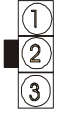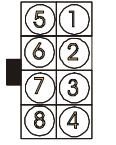The Wax /Lift /Power Supply Board acts as a junction board which interfaces with the:

- Display Console
- Frame Tag
- Home Switch TR93/95
  0% Switch and Negative Switch TR97
- Lift Motor
- Power Supply

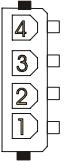| Description	Location	Function	
Service LED	LED1	Flashes when the control processor and the main processor are running. (Console board)	
	LED2	ON when lift motor is going up	
	LED3	ON when lift motor is going down	
	LED4	ON when 0% switch is closed	4 & 5 on when at 0% on 93Ti & 95Ti only.
	LED5	ON when bottom limit switch is engaged	
	LED6	Flashes when Control UP is running	
	LED7	Green indicates that +12V output is ON	
	LED8	Red indicates that +8V output is ON	
FUSES	FUSE 1	2 Amp 120 Volt AC supply for low voltage power supply	
	FUSE 2	4 Amp 120 Volt AC supply power for lift motor	
	FUSE 3	4 Amp 120 Volt AC supply power for lift motor	
Relay Switch	Relay 1 and 2	Drives Lift Motor	
	Relay 3 (12VDC coil)	NOT USED	
	Relay 4 (12VDC coil):	Relay 4 supplies AC input to the Wax/Lift Circuit	
Jumper (JW)	JW1	One(1) wire system	
	JW2	Two(2) wire system	

ELECTRONIC OVERVIEW - LCD WAX LIFT PCB (only)

Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 10 pin connector, which connects to the Console		1	Ground
		2	Ground
		3	+5VDC
		4	+5VDC
		5	+12VDC
		6	RXD
		7	TXD
		8	BUS request
		9	+12VDC
		10	Pin relay
P2 is a 4 pin connector, which connects to the Lift Motor		1	0 position
		2	Ground
		3	Bottom
		4	Ground
P3 is a 3 pin connector, which is not used.		1	N/U - not used
		2	N/U - not used
		3	N/U - not used
P4 is an 8 pin connector, which connects to the Frame Tag PCB		1	+5VDC (VCC)
		2	Ground
		3	MISO
		4	MOSI
		5	SCK
		6	NC
		7	CS
		8	CE

Connector	Location	Pin	Functional Description
P5 is a 3 pin connector, which connects to the AC Input		1	Hot (120 VAC)
		2	Neutral
		3	Ground
		4	Ground
P6 is a 2 pin connector is not used.		1	Neutral
		2	Hot (120 VAC)
P7 is a 4 pin connector, which connects to the Lift Motor		1	Down
		2	Hot (120 VAC)
		3	Up
		4	Ground
P8 is a 5 pin connector, which connects to the Life Link Board		1	+8VDC
		2	Ground
		3	Bus request
		4	Receive data
		5	Transmit data
P9 is a 6 pin connector, which connects to the Motor Control Board		1	+12VDC
		2	Ground
		3	Pin Relay
		4	Bus Request
		5	Receive data
		6	Transmit data
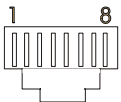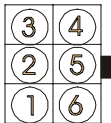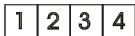
Connector and Pin Functions

Connector	Location	Pin	Functional Description
P1 is a 15 pin ribbon connector, which connects to the key pad.		1	ESD Ground
		2	Switch strobe 0
		3	Switch return 0
		4	Switch strobe 2
		5	Switch strobe 1
		6	Switch return 1
		7	Switch strobe 0
		8	Switch return 2
		9	Switch strobe 1
		10	Switch return 3
		11	Switch strobe 2
		12	Switch strobe 1
		13	Switch return 4
		14	Switch strobe 0
		15	ESD Ground
P2 is a 10 pin connector, which connects to the Wax/Lift PCB		1	GND - ground
		2	GND - ground
		3	NC
		4	Pwr_EN
		5	+12VDC
		6	TXD – transmit data
		7	RXD – data received
		8	Bus_Req (bus request)
		9	+12VDC – emergency stop switch
		10	Relay Enable

Connector	Location	Pin	Functional Description
P3 is an 24 pin connector, which connects the interface board to the Single Board computer.		1	RS232_HC12 RxD
		2	RS232_HC12 TxD
		3	RS232_CSAFE CTS
		4	RS232_CSAFE RxD
		5	RS232_CSAFE Txd
		6	PON_SLEEP
		7	PON_AND
		8	HC12 WAKEUP_PULSE
		9	GROUND
		10	GROUND
		11	Px_WAKE_PULSE
		12	X_RESET
		13	GP10-0
		14	GP10-1
		15	GP10-2
		16	FE_OUT
		17	GROUND
		18	GROUND
		19	GROUND
		20	TUNER_SDA
		21	TUNER_SCL
		22	TUNER_GND
		23	TUNER_5V
		24	TUNER_GND
P4 is a 4 pin connector, which connects to the Lifepulse Electrodes		1	Right - Ground
		2	Left - Ground
		3	Left +
		4	Right +
P5are 8 pin connectors, which connect to the C-SAFE and Cardio Theater Interface		1	N/U - not used
		2	N/U - not used
		3	Receive Data
		4	Transmit Data
		5	+8 VDC
		6	CTS
		7	Ground
		8	N/U - not used
P6 is a 6 pin connector, which connects to the Background Debug Mode Signals		1	BKGD
		2	Ground
		3	N/U
		4	Reset
		5	N/U
		6	+5VDC

Connector	Location	Pin	Functional Description
P7 is a 6 pin connector, which connects to the Polar Receiver and at the end of the Session Switch		1	+5VDC VCC
		2	NC
		3	+5VDC VCC
		4	Ground
		5	ESTOP
		6	NU
		7	Test Mode
		8	Polar Signal
P8 VIDEO which connects the interface board to the Single Board computer.		1	VID_OUT
		2	GND
P9 2^{nd}_IF which connects the interface board to the Single Board computer.		1	2^{nd}_IF
		2	GND
P10 is a 4 pin connector, which connects to the Smart Stop Module		4	Smart Stop Signal
		3	Smart Stop Enable
		2	+8VDC
		1	Ground
P11 is a 2 pin connector, which connects to the Emergency Stop Switch		1	Switch (-)
		2	Switch +12VDC

Inverter
Board

J1

J2   J3
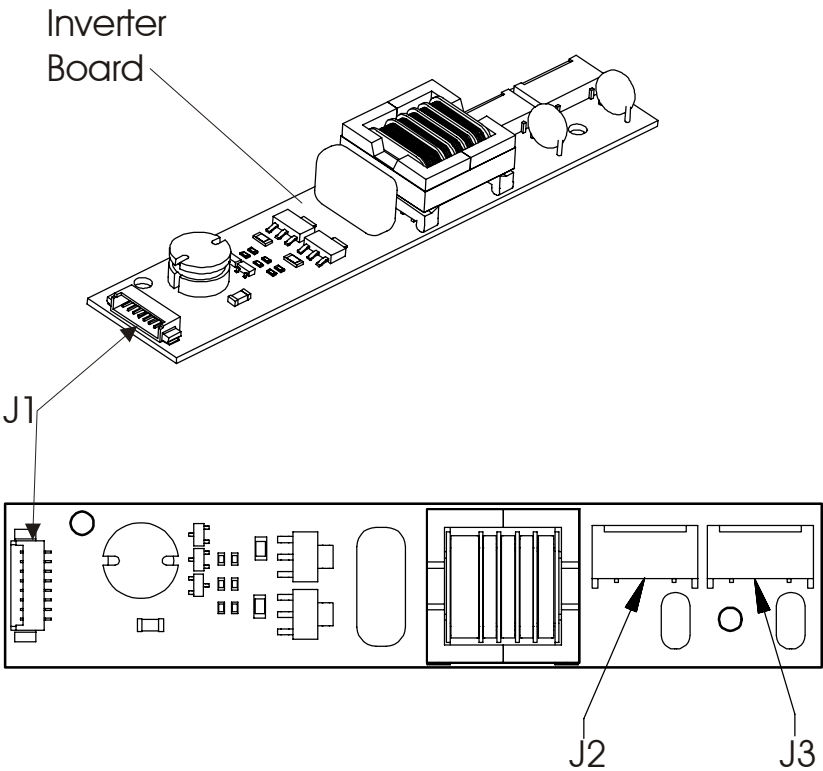
CONNECTOR	PIN	FUNCTION	VOLTAGE
J1 See Illustration Above	1	Vin	12 Volts DC
	2	Vin	12 Volts DC
	3	Ground	Ground
	4	Ground	Ground
	5	Enable	0-5 Volts DC
	6	N/C	N/C
	7	N/C	N/C
	8	N/C	N/C
J2 See Illustration Above	1	AC-out	1500 VAC Unload 550 VAC Loaded
	2	AC-com	-
J3 See Illustration Above	1	AC-out	1500 VAC Unload 550 VAC Loaded
	2	AC-com	-

SECTION 5

MISCELLANEOUS

NOTES

Serial and Model
Number Location

PREVENTIVE MAINTENANCE TIPS

Preventive Maintenance Schedule

ITEM	WEEKLY	MONTHLY	QUARTERLY	BI-ANNUAL	ANNUAL
DISPLAY CONSOLE ASSEMBLY					
Hardware				Inspect	
Overlay	Clean			Inspect	
Accessory Cups					Inspect
Stop Switch	Clean			Inspect	
Emergency Switch/Key	Clean			Inspect	
HANDLEBAR ASSEMBLY					
Hardware				Inspect	
Handlebar				Inspect	
Side Hand Rails				Inspect	
LifePulse Sensors	Clean/Inspect				
Smart Stop Cover	Clean/Inspect				
FRAME ASSEMBLY					
Hardware				Inspect	
Motor Cover	Clean				
Motor Electronic Compartment		Vacuum Clean		Inspect	
Drive Belt				Inspect	
Leg Levelers		Inspect/Adjust			
Front Roller				Inspect	
Rear Roller				Inspect	

LifeFitness

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11/04